Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

INDEPENDENT MICROWAVE

Four Florida Independents join together to build a microwave network. System symbolized by construction of this huge antenna at the Leesburg exchange of Florida Telephone Corp. See page 20 for complete story.

MANAGEMENT • PLANT • TRAFFIC • COMMERCIAL • LEGAL • ACCOUNTING

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FLASHES AND PLUGS

CALL OF THE WILD. Three East Chicago (Ill.) detectives got a call recently to hurry over to the office of a local coal company.

"The telephone is off the hook and I can't make out what they're saying" was the information supplied by a telephone company switchboard operator who had traced the mysterious call to the coal company.

Bursting into the office, the three officers found the telephone on the floor, and a huge police dog—the company "watchman"—barking earnestly at the receiver.

Commented the Detective Chief: "This one's for the dogs."

•

PERFECTLY OBVIOUS. AT&T's *Long Lines* magazine recently recounted the proceedings of a scientific debate between two men as follows:

The subject under discussion was the speed of sound. They had taken a mythical situation in which a man in New York had placed a telephone call to a friend in San Francisco while a second friend stood by. Who would hear the speaker's voice first—the friend in San Francisco or the onlooker who (for the sake of the argument) was standing 200 feet away?

It was decided that the man in San Francisco would hear it first since the speed of electricity is so much faster than the speed of sound.

Later one of the men decided to spring this problem on his wife whose knowledge of such matters was practically nil. To his surprise, her answer was immediate.

"The man in San Francisco, of course."

"Why are you so sure?" asked the puzzled husband.

"Because," replied the non-scientific wife triumphantly, "the time is three hours earlier in San Francisco than it is in New York."

•

CORN IN TEXAS. From Texas comes the yarn about a wealthy old oil man who installed a colored telephone on the dash of his flashy convertible. On the floor he placed a button by which he could make it ring.

His fun resulted from pulling up alongside women drivers at traffic lights. The telephone would ring loudly. Tex would pick it up and make a big show on answering:

"Hello. Yeah. Who? Okay, just a minute."

Then old Tex would pick up the telephone and hand it out the window, explaining:

"It's for YOU, doll."

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Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY
Since 1904

July 6, 1957

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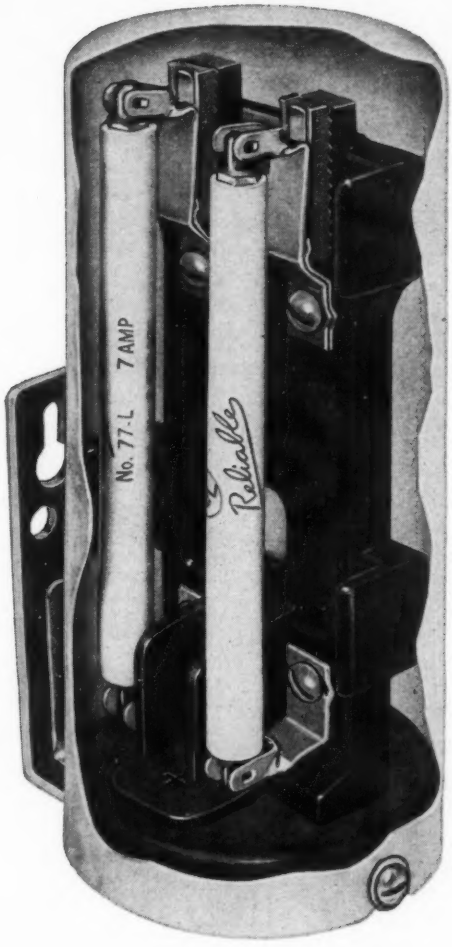

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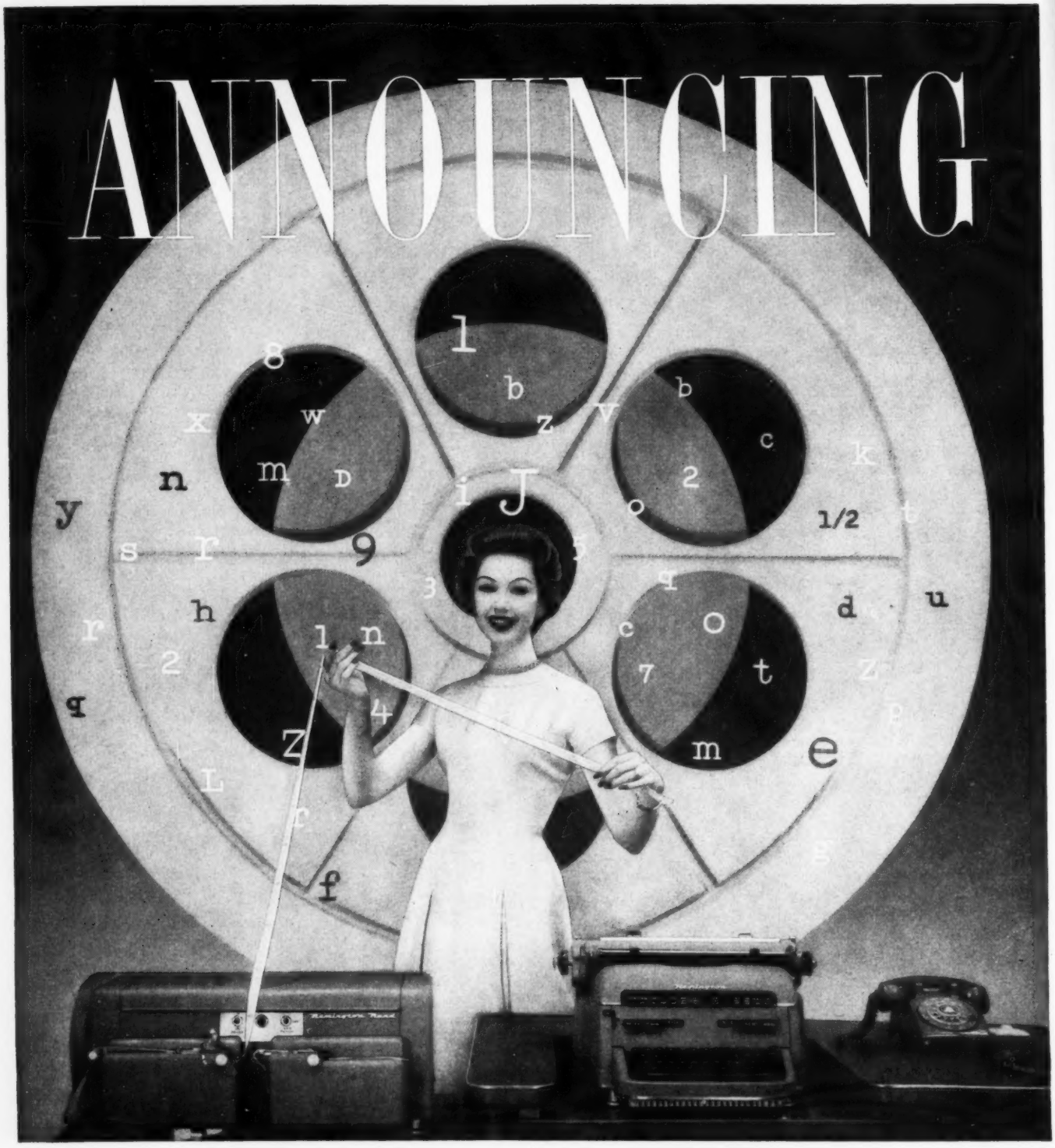

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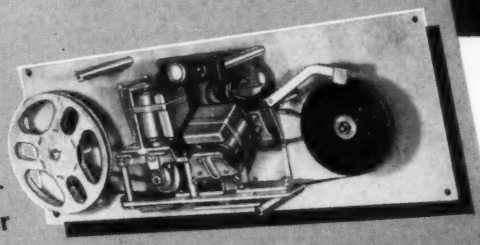

2 The NORTH Anal "read" the punched ord and computed cost from the pr preset base and o time rates.

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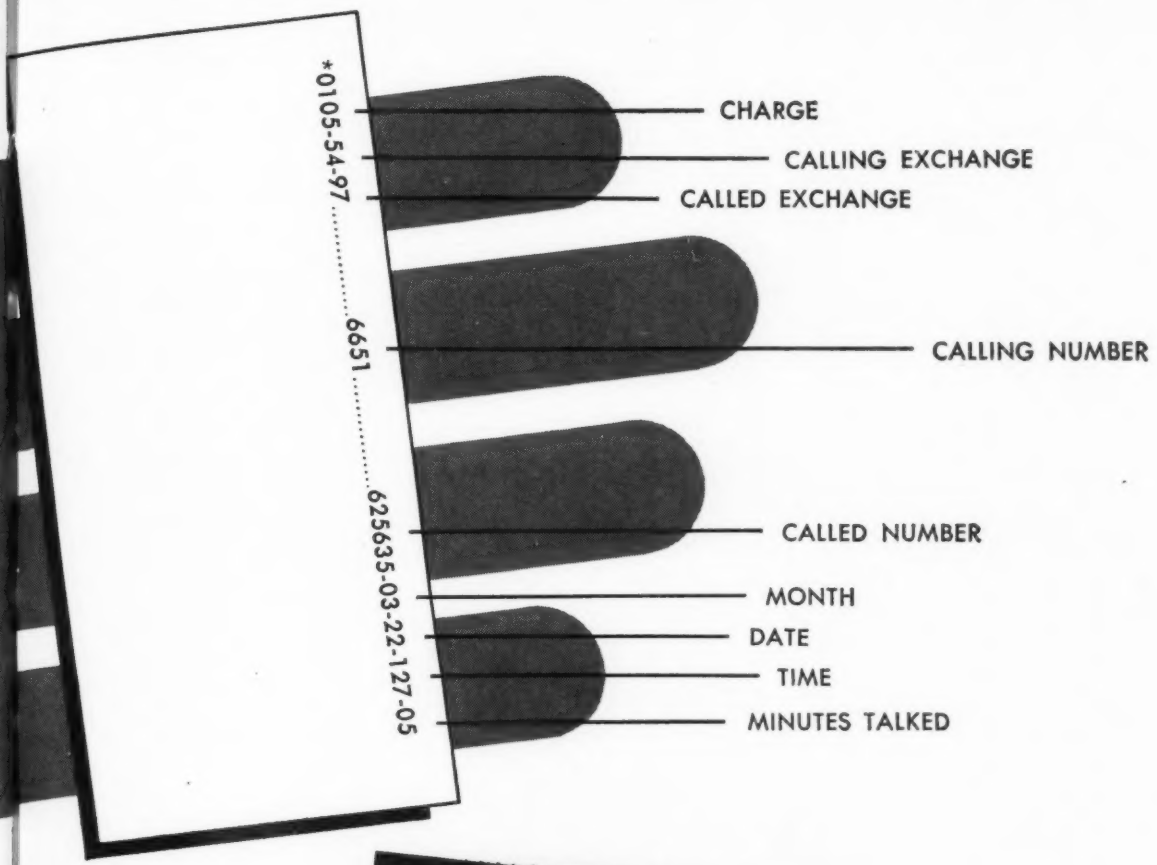

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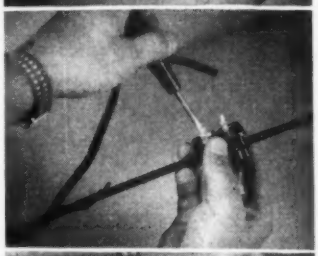

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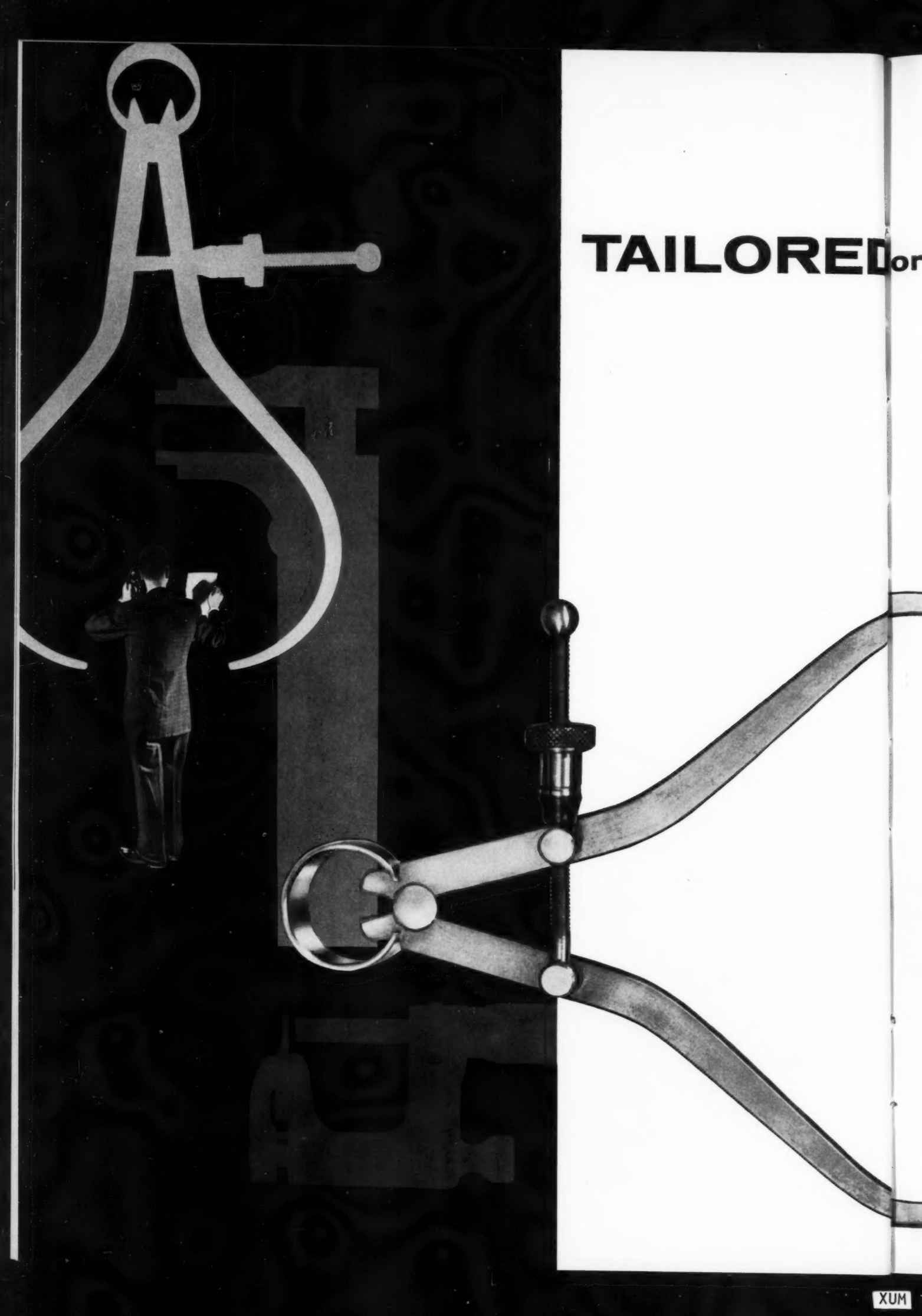
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2. The system provides single party service, restricted and "executive-right-of-way" service, and conference and code call facilities.

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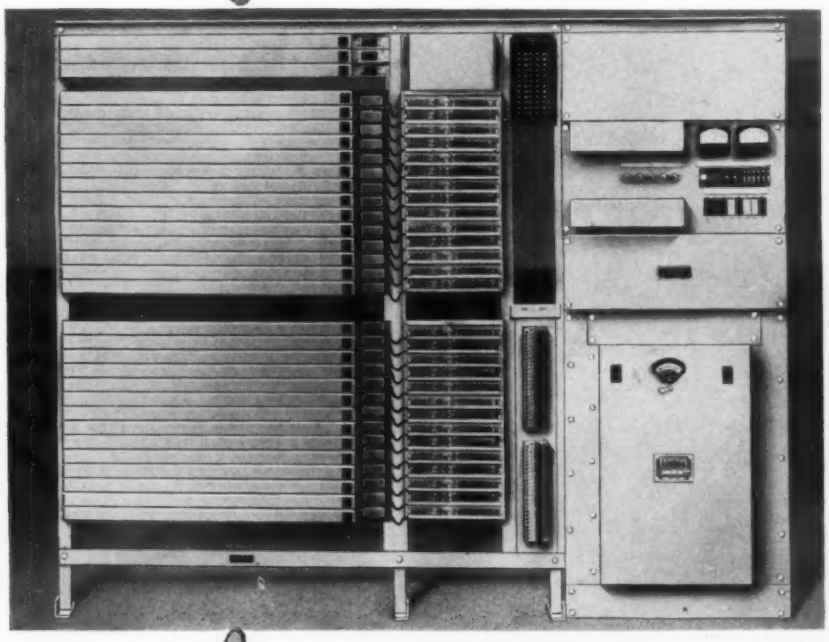
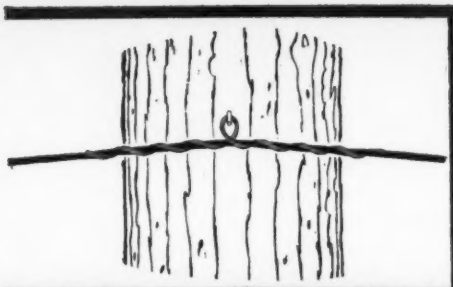
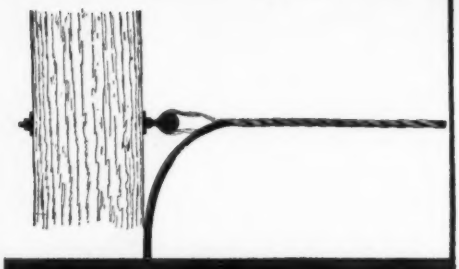


All switching equipment for the F-80 PBX is contained in a single compact equipment bay. Its approximate dimensions are 6 feet high, 7 feet wide, 1 foot deep.

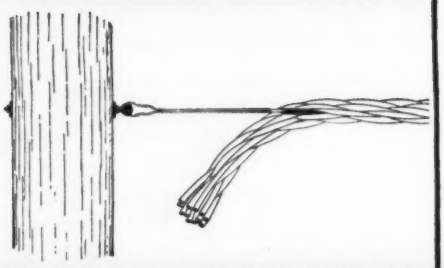
The smartly styled modern cabinet requires no cable turning section. If more than one attendant's position is needed, it is easily installed.



"C" Rural Tangent Supports

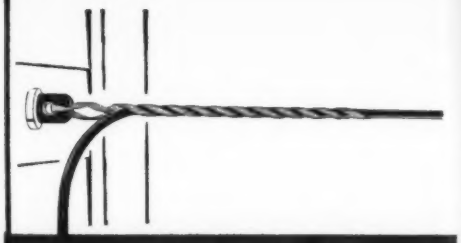


"C" Rural and Open-Wire Dead-Ends

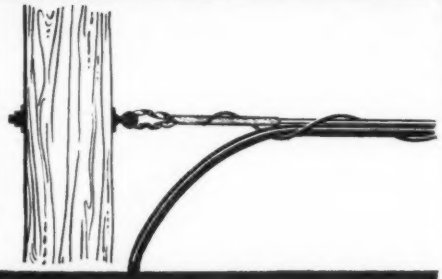


"B" Rural Dead-Ends

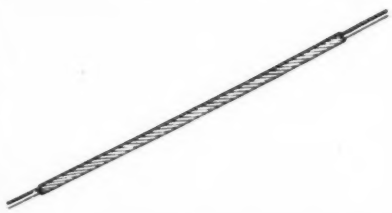
Guy-Grip Dead-Ends



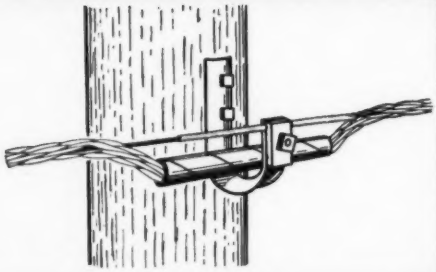
Drop Wire Dead-Ends



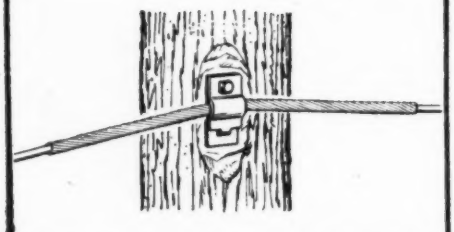
Lashing Rods



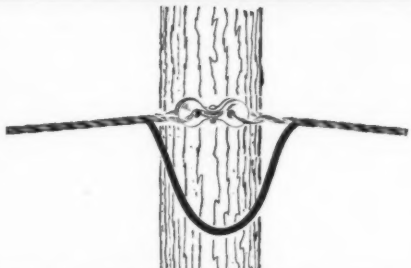
Splices for Line Wire and Messenger



Armor Rods for Insulated Messenger



Line Guards



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IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR

Stresses need for "regulatory climate" (meaning fair and reasonable regulation) so that utilities' earnings will be sufficiently stable to be favorable from investors' point of view . . . cites examples of "favorable" and "unfavorable" climate. George R. Perrine of Illinois Commission leading candidate for vacant FCC membership.

NOT LONG AGO at a meeting of public utility security analysts in one of our larger cities, the question was asked what three states the analysts considered most favorable from the standpoint of public utility operations. The reference was to the so-called "regulatory climate" which means that the regulation is fair and reasonable to the point that the prospect of stability of utility company earnings in that state is favorable from the investor's point of view.

The first choice of these analysts, who are supposed to be very well-informed about the local operating conditions of all utility companies in which they must consider security investment, was Florida. The Florida commission, while it does not use a fair value rate base, does use a prudent investment rate base construed liberally and has a policy of granting a 6½ per cent rate of return on such a rate base.

The Florida commission only a few days before that meeting of analysts had issued a "show cause" order, pointing out that the Florida Power & Light Co. was earning in excess of 6½ per cent return and directing that company to cut electric rates to that level. Surprisingly enough, the company's management agreed to go along and accept the rate cut. This would seem to bear out the judgment of the analysts that Florida commission regulation, while strict, is nevertheless reasonable from the standpoint of both the investor and the utility customer.

(This is not to say that commissions have always fixed their sights on rate of return as high as they should have. As a matter of fact, on a basis of relative risk, the view is commonly held that telephone companies are entitled to a higher rate of return than electric companies — all other things being equal.)

If the Florida commission were too lax or too liberal in allowing rate increases (something that has not happened for a long time) that would be equally bad from the hard-headed analysts' point of view. They realize that such a situation does not last long and almost invariably boomerangs when the politicians catch up with a ready-made issue. But these same analysts, who have the responsibility for recommending the replacement of millions of dollars of investment, are very keen to ferret out situations where the regulatory climate is unduly repressive and, therefore, unfavorable to the investor.

Not long ago the Louisiana Supreme Court upheld an order of the Louisiana commission reducing Southern Bell Telephone & Telegraph Co.'s rates by $3,940,000 as against a 6 million dollar annual rate increase sought by the company. The commission used average net investment at an original cost, plus a very small amount of property held for future use. But it excluded from the rate base plant under construction, materials and supplies, and cash working capital. It also came suspiciously close to dispensing with the rate base altogether as a controlling factor in rate-fixing when it stated: "The net operating income is the controlling factor . . . It is readily apparent that, with a given rate base, the rate of return is simply an arithmetical by-product of the net operating income. If the net operating income is just and reasonable, the rate of return is perforce just and reasonable."

It ought to be obvious that if the rate of return can be dismissed as simply an arithmetical by-product, then the rate base itself, which must be multiplied by the rate of return, could not be very much more important. This leaves the reasonableness of the operating income up in the air. The commission placed heavy reliability on the cost of capital. It found from the evidence that the American Telephone and Telegraph Co. secures funds for investment in Southern Bell common stock by the sale of AT&T's long-term debt at 3½ per cent, or a net cost of 1.68 per cent after federal taxes.

The interesting feature of this case is that the Louisiana commission appears to be deserting the familiar rate base-rate of return formula, and to be regarding cost of capital, directly, as if it were the same thing as the rate of return, or as if it were an operating expense. Even as to this, it assumed (hypothecated) that Southern Bell should have adopted a debt ratio from 45 per cent to 50 per cent because otherwise Southern Bell's subscribers would have been burdened with an unduly conservative capital structure, designed to pyramid dividends on Southern Bell's common stock payable to the parent company.

The commission allowed only 6.6 per cent on common stock capital and it excluded earned surplus from even

XUM

that allowance. This brought the overall rate of return down to 4.8 per cent on the conventional rate base method. And, this, the Louisiana Supreme Court has upheld, which means that the case has ended, and nothing more can be done about it—at least until another case is started. One might well wonder what the security analysts would have thought about the regulatory climate of Louisiana under such circumstances.

"Hard Money" Complications

One of the complications likely to result from depending exclusively on the cost of capital to regulate the allowable rate of return comes from the current tight money market. Public utility companies attempting to raise funds under present-day conditions, may have to pay 6 per cent or more for bond money, unless regulatory commissions allow provisions protecting investors against having the bonds called for redemption at some future period when interest rates may go down.

Last month, for example, Puget Sound Power & Light Co. had to put a 20 million dollar bond issue on the market which were priced to yield for public offering 6 per cent—the highest for any electric utility issue in a quarter of a century. Puget Sound itself had to pay 6¼ per cent. Independent telephone companies are also finding debt interest demands of more than 6 per cent not uncommon.

Puget Sound Power & Light Co. had another unfavorable climatic factor in the current political furor over federal public ownership of power projects in the Pacific Northwest area, notably in the Hell's Canyon site on the Snake River. When Puget Sound asked for permission to make the bonds noncallable, in order to get a low interest rate, the Federal Power Commission refused to allow it. Large investors insist on such benefits and, when they are denied, they regard the regulatory climate as unfavorable. And, so, Puget Sound Power & Light Co.'s ratepayers must now pay rates which will yield a return which will cover not only 6¼ per cent bond money but presumably also cover a higher cost of capital for common stock financing.

Reasonable Climates

Looking in the other direction one can also find evidence of more favorable regulatory climate development in the recent news. In the telephone industry, probably the more important was the refusal of the recent special session of the New York Legislature to shift the telephone company rate base from "current replacement" (as required by a high state court decision) to original cost as demanded by Governor Harriman.

The chairman of the Virginia State Corporation Commission and the dean of all state regulatory commissioners in the United States, Judge H. Lester Hooker, told the 25th annual convention of the Edison Electric Institute, meeting last month in Chicago:

"Looking back over my experience of more than 30 years in the field of regulation, especially as to public utilities, I am convinced that it is very important to keep one central theme in mind. That theme is simply this: It is necessary for regulatory commissions to take a balanced view looking toward stimulation of utility expansion rather than only the cost of service to the public.

"Moreover, and here is the point where regulation can easily go astray, we must not lose sight of the fact that the fulfillment of our obligation to the public can be achieved only when the utility is in a consistently sound financial position. The interest of the consumer is inescapably linked to the condition of the utility.

"Under state regulation, private industry has had a major part in the amazing expansion of utilities since the end of World War II, and some parts of it have grown much faster than the average; for example, 145 per cent growth in the electric industry's KWHR compared with 85 per cent growth in gross national product. In the telephone industry, 3.4 million telephones were added during 1955 (nearly half again as many as in 1954) so that at the beginning of 1956, over 56 million telephones were in service.

"The utility industry has raised about 25 billion dollars of new capital, nearly one-half of the capital raised publicly by corporations of the United States in this period. This has been an outstanding job, yet the almost overpowering demands of the American economy for utility service continues. However, only the financially strong company can secure the money to adequately meet these heavy and exacting public demands. One of the important responsibilities of a regulatory commission, it seems to me, is to realize that regulatory commissions, as well as utilities, must have a long-range plan. We are woefully mistaken if we get the idea that regulation begins and ends by whittling down the rates which a utility should be permitted to charge. Only a healthy utility can develop new service, expand its business, and get the capital to properly extend the service that is required to adequately meet the reasonable needs of the public.

"The commission that fails to permit a utility to continuously earn a reasonable and fair return is not, in my opinion, properly protecting those who use and depend on regulation to see that they receive efficient and dependable service."

Some time before that the general solicitor of the National Association of Railroad and Utilities Commissioners (NARUC), Austin L. Roberts Jr., told an industry-business-labor-education workshop in Baltimore, Md., that regulation must be balanced in the public interest for the protection of both the investor and the ratepayer. Mr. Roberts stated:

"One illustration of why a utility must be in a healthy financial position concerns planning for the future. Take a new expansion project of a telephone utility for example. Studies might show that a new cable is needed to a certain area, and that twice as many facilities may be required in five years as will be required in two years. It may very well be that over the life of the cable —in the long run—it is more economical to initially place a cable large enough to take care of the needs for the five-year period. However, this would require more capital initially, even though more economical in the long-run. If the utility is not in a sufficiently financially healthy condition to take advantage of long-range planning; if it is forced into taking the short-range plan—in this instance of placing a cable only large enough for the initial requirements because of the difference in initial capital outlay—in the long-run it is the customer who suffers."

A somewhat similar view was stated last May before the Illinois Telephone Association, meeting in Peoria, by R. B. Thomas, chief engineer of the Illinois Commerce Commission. He said:

"Obviously, as a staff man on the Illinois commission, I'm not in a position to make policy. But if I were managing one of your companies, I would be a lot more apt to make the larger financial commitments required for long-range installations if my earnings were a little above minimum level. On this basis, I would think that some margin of earnings above the minimum not only would be appropriate but also would be in accord with the legal theory that management efficiencies, whether evidenced through effective long-range planning, new services, aggressive merchandising or more economical operation merit regulatory reward."

One could go on citing other examples of a more realistic attitude by regulatory people towards the need for maintaining favorable regulatory climate. But, the point to be remembered is that the investor is a free agent, while the telephone company and other public utility companies are not (as is so commonly said) monopolies, as far as financing is concerned. They simply must raise an increasing amount of money from the same financial sources that unregulated and unrestricted growth industries—such as steel, automobiles, chemicals—use to raise their investments.

The investor cannot be told what to do or where he must put his money. He is going to invest where he pleases and where he thinks he will get fair treatment. That is the true meaning of

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REA Makes Loans Totaling $3,680,000 in Six States

The Rural Electrification Administration from June 17 to 21 approved loans which, it said, will provide more than 2300 rural families with telephones for the first time. The loans, totaling $3,680,000, went to eight borrowers in Georgia, Illinois, Kansas, Minnesota, Ohio and Wisconsin. Details of the loans follow:

The Oakwood (O.) Mutual Telephone Co.; $200,000, first loan (June 18).

The new borrower, a commercial corporation, plans to use the funds to improve service for 478 existing subscribers and to serve 96 farm families now without telephones. The company now furnishes magneto service over 88 miles of line.

New facilities will include a combination headquarters and automatic central office building in Oakwood.

Donald Stephens is president and Guy A. Carnahan is manager of the Oakwood Mutual Telephone Co.

•

Burlington, Brighton & Wheatland Telephone Co., Burlington, Wis.; $276,000, first loan (June 18).

The new borrower proposes to use the funds to convert its system, now providing magneto service to 554 subscribers, to automatic operation and to serve 130 additional farm families without telephones. The system consists of a central office at Wheatland.

A new automatic office is planned in Wheatland. Commercial office facilities will be rented in Burlington.

Walter L. Kuebler is president and Gilbert A. Karcher is manager of the Burlington, Brighton & Wheatland Telephone Co.

•

Rural Telephone Service Co., Lenora, Kan.; $190,000, second loan (June 19).

The borrower plans to use the funds to provide service to 375 farm families, including 78 now without telephones. The 297 existing subscribers now receive magneto service from the Palco Telephone Co., whose facilities the borrower proposes to acquire. A new automatic central office is scheduled at Palco.

A portion of this loan will be used to construct a new automatic central office at Lenora, Kan., and to remodel the existing building for commercial office facilities.

Past and present REA loans totaling $1,118,000 will enable the borrower to offer service to 2,047 rural subscribers. The system will consist of exchanges at Damar, Edmond, Lenora, Logan and Palco.

Leland Archer is president and Carroll K. Nelson is manager of the Rural Telephone Service Co.

•

Pineland Telephone Co., McGregor, Minn.; $900,000, first loan (June 20).

The new borrower plans to use the loan to serve 591 families now without telephones, and to improve service for 728 existing subscribers, including 335 now receiving dial service from the Pineland company through exchanges at McGregor and Gateway. The remainder get magneto service from the following companies which the borrower plans to acquire with loan funds: Willow River Telephone Co.; Tamarack Telephone Exchange; Salo Cooperative Telephone Association at Lawler, and the Denham Cooperative Telephone Association.

New automatic central offices will be constructed at Gateway, McGregor, Tamarack and near Sturgeon Lake. A building in McGregor will be remodeled to house commercial office facilities.

O. L. Johnson is president and manager of the Pineland Telephone Co.

•

Standard Telephone Co., Cornelia, Ga.; $618,000, second loan (June 21).

The loan will enable the borrower to provide facilities to serve 1,285 new rural subscribers not included in the first loan, and to purchase land and construct new automatic central offices at Blairsville, Dahlonega, Young Harris and Cornelia. The present leased headquarters building in Cornelia will be remodeled and used for commercial facilities only. Originally, the borrower had considered retaining common battery exchanges in leased buildings at these locations. The automatic switchboard at Clarksville will be expanded and space will be provided for branch commercial facilities in the Cleveland and Dahlonega buildings.

A total of 4,831 farm families and other rural residents will receive new and improved service as a result of the two REA loans totaling $1,542,000. Automatic central offices will be located at: Blairsville, Clarkesville, Cleveland, Cornelia, Dahlonega, Dawsonville, Demarest, Helen, Hiawasee and Young Harris.

H. M. Stewart is president and manager of the Standard company.

•

Northern Illinois Telephone Co., Forreston, Ill.; $790,000, second loan (June 21).

The borrower plans to improve service for 1,552 existing subscribers and to furnish initial service for 75 rural families. About 1,450 of the existing subscribers now receive magneto and common battery service. The remainder receive dial service from the following companies which the borrower plans to acquire: Lanark Mutual Telephone Co., the Tri-County Mutual Telephone Co. at Creston, and the Winslow Telephone Co.

New automatic central offices are scheduled at Creston and Winslow. The Brookville automatic facilities will be retained, and the Lanark building remodeled and enlarged to house new automatic equipment and subheadquarters facilities.

The company will be able to offer new and improved service to 5,373 subscribers with its two REA loans which total $2,396,000. The new system will consist of 11 exchanges.

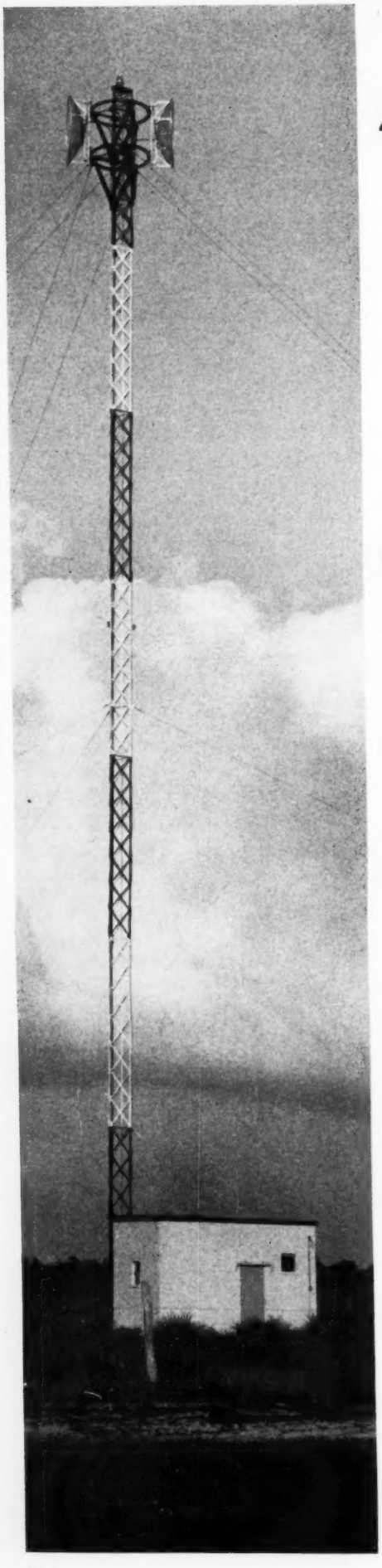
LeRoy T. Carlson is president of the Northern Illinois Co.

•

Eastern Illinois Telephone Co., Rantoul, Ill.; $262,000, second loan (June 21).

The borrower will use these funds to expand the automatic central office building, now under construction in Rantoul, to provide space for toll board equipment, and garage facilities; increase the proportion of

(Please turn to page 38)



4 Florida Independents Join in Building Big Microwave Network

By THOMAS D. BOYD and F. S. SWETT

THE LARGEST Independent telephone microwave development in the United States today is taking place on America's largest peninsula—Florida. Much of it has been completed and was turned up to service this past winter and earlier this year. Some of it is still going on, and the plant currently installed was planned as the basis for expansion in many years to come.

That this should be taking place in Florida is no surprise, for that sunny state is busting out all over. During the last 20 years Florida's population has grown four times as fast as the rest of the nation's. Since 1950, when the current upswing hit its stride, Florida has grown from the 20th state to the 14th in population. Three of the nation's 10 fastest-growing cities are in Florida. And Floridians' individual incomes have grown nearly twice as fast as average individual incomes elsewhere in the states.

Three major Independent telephone companies operate right in the middle of some of the fastest-developing area in Florida—the central west coast and the inland citrus and agricultural areas. Tampa is the hub and the principal shipping point.

The companies serving this general area are the Peninsular Telephone Co. with general offices at Tampa, the Inter-County Telephone & Telegraph Co. with general offices to the south at Fort Myers, and the Florida Telephone Corp. with general offices at Ocala, north of Tampa.

Another growing area in the north central portion of the state is served by a fourth company, the North Florida Telephone Co., of Live Oak. While its area is not directly involved in the booming expansion of the west coast, it is taking part in the general growth characteristic of all of Florida.

Throughout the state, communities have had to gear themselves for a new type of development. Today, it is not just tourists who swell the state's population during the winter-time only. There is a steady influx of families looking for homes, and of industries taking advantage of Florida's swelling labor market, its attractive climatic conditions and the general atmosphere of hospitality to industry that is characteristic of the state. One indication that winter tourism and the "summer slump" no longer dominate the economy is seen in the traffic curve—nowadays almost a straight line.

Although each of these telephone companies has individual problems in its service area, all four naturally share the common obligation to provide adequate service most efficiently.

In the years since the war this has meant a continual scramble to keep up with the demand for telephone service. For instance, station growth in Florida from 1947 to 1957 has been nearly 200 per cent. In recent years companies have found that their existing outside plant was filled up and could not be looked to for future expansion.

Although individual cases from the

LEFT: This Peninsular Telephone Co. unattended repeater station on the Rutland Ranch range near Myakka City, Fla., relays 36 channels from Bradenton to the Arcadia repeater and office in Inter-County Telephone & Telegraph Co. territory. It is the only guyed tower in the Peninsular system.

experience of each of the four companies will be considered, it can be said generally that for all of them microwave radio was indicated as the medium for their rapid growth. Either their open-wire lines were not designed for carrier operation and would have required extensive rebuilding, or the cost per circuit mile of a new cable facility of comparable capacity would not prove in, or there was a time factor involved. In some cases, this microwave proved in over surprisingly short distances.

This prove-in was on the basis of 120-channel systems. Even though 120 channels of carrier equipment were not provided with the initial microwave installation, the RF capacity is there for future exploitation by simply applying more multiplex equipment.

For all of the four companies it has meant a considerable investment now for service in the future. Microwave of smaller channel capacity, while less expensive at the outset, simply would not have been economical for future expansion. However, there is nothing in the wind in Florida today to indicate that this state-wide growth and the corresponding need for new telephone service are going to slack off in the foreseeable future.

The companies based their decisions on studies of future circuit needs and costs, and they proved they were right with subsequent experience. One rainy night with rising flood-waters proved it for Florida Telephone Co. when open wire and cable toll facilities were disabled for several hours at Kissimee. The state's highway program proves it—every time a cable is cut or a pole line has to be relocated.

Peninsular is the largest Independent in the United States not part of a holding company operation. It pioneered in the use of dial service, making its first installation in 1914. In 1915, it converted Tampa to 100 per cent dial service. The company's facilities became 98 per cent automatic before World War II. Soon after the delays brought about by World War II came to an end, the few small exchanges remaining were converted to automatic. In 1947, Peninsular became the first large company in the country operating over a sizeable area to reach the goal of full dial services.

As the only engineer from an Independent telephone company on the AT&T and Bell Laboratories Toll Dialing Committee, Peninsular's Chief Engineer Marcus L. Donaldson helped lay out the organized nationwide toll dialing plan.

Peninsular also was the first company in Florida to use short-haul microwave for commercial circuits, between Tampa and Bartow.

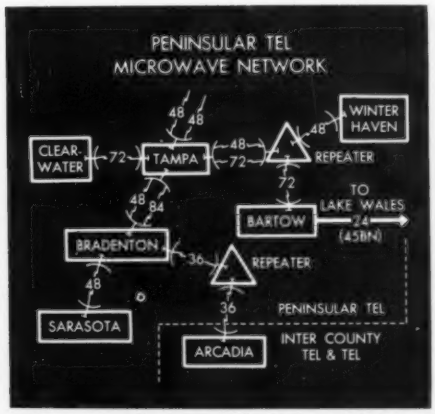
Today, the company serves 100 communities through its 12 toll centers and 46 dial central offices, operating exchanges in six counties and toll lines in these and four more. The company had nearly 292,000 telephones in service at the end of 1956.

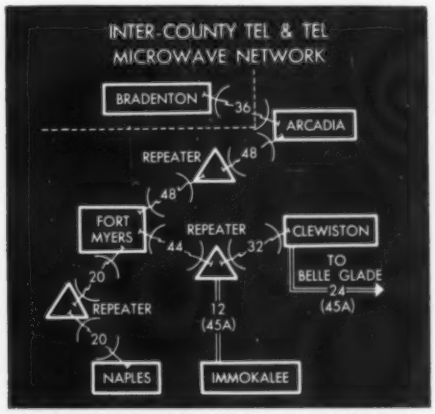
The booming growth in its service area has called for a 75 per cent increase in circuits during the last four years. This expansion has included adding an average of one private line facility a week, and each private line facility meant some other toll circuits were freed for service. Nevertheless, the company expects to add toll capacity at the rate of 20 per cent annually, which means it will double its toll capacity in the next five years.

Peninsular's president and general manager, Carl D. Brorein, looking back over this period of growth, recalls that "it started during the war with the military development — army and air force training bases. During the war, of course, there were several years when there were no materials available for building and the demand was pent-up. So, now we have this post-war regular growth plus making up for the pent-up five years. Florida has had an experience similar to California's, with so many of the servicemen who were stationed there during the war deciding to return after the war to settle."

"We are preparing for a continuation of this growth trend. It has lasted for 11 years at the same rate. Continuation of this growth will bring problems, but every effort will be made to provide the services required. Florida could support a population like that of New York. You will never get away from the attractions of the climate, the benefits of sun and air and industry," Mr. Brorein said.

As one example of how Florida companies are hard-pressed to keep up with this continuing growth, consider the history of one Peninsular building





LEFT MAP: Heavy, dotted lines indicate the new microwave links established by four Florida Independents. Solid lines indicate the boundaries of the operating areas. CENTER MAP: Peninsular Telephone Co. system described in this article. Figures between the rectangles (offices) and pyramids (repeaters) indicate the number of channels provided on the microwave paths. Two parallel beams, from a single antenna, link Tampa and Dade City to the north. Similarly parallel systems operate to a repeater to the east and to Bradenton. At Bartow, 24 channels interconnect with carrier on the Lake Wales cable. Peninsular plans to add 24 channels between Tampa and Clearwater and 24 between Tampa and Sarasota during this year and next year. RIGHT MAP: Inter-County Telephone & Telegraph Co. microwave network also discussed in this article. From Fort Myers, 48 channels are beamed northward via the Punta Gorda repeater to Arcadia, where 12 drop off. The other 36 are repeatered to Bradenton (Peninsular) and on to Tampa. At the La Belle repeater on the Fort Myers-Clewiston link, 12 channels are dropped to interconnect at carrier frequency to open-wire carrier serving Immokalee. At Clewiston, 24 channels are similarly interconnected to serve Belle Glade.

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in St. Petersburg. The company built a new building eight years ago, thinking that it would take care of needs for a good long while. But, within six years, it was necessary to add to it. Two years later, it was outgrown again and the company is now putting up a complete new building, for 10,000 lines of equipment, and doubling the central office.

In the past four years, Peninsular has added new buildings or made substantial additions to existing buildings at 22 central offices and has remodeled those at two more, including the general offices in Tampa. It spent 19.9 million dollars on new construction in 1956 to bring its telephone plant in service to 85 million dollars. This year's budget is 22.3 million dollars.

Before turning to microwave, Peninsular relied on underground cable almost entirely for its toll circuits. Not all of that cable is multiplexed, and some of it was not yet filled when studies of future circuit requirements showed that additional flexibility was desirable. The cable will remain in service as a stand-by facility.

There was also some multiplexed wire line. The company is taking advantage of the relief offered through its microwave installation to move some of that wire line carrier equipment to serve other points in its system.

For instance, there were 12 channels of 150 kc carrier on the wire line between Tampa and Fort Myers through a repeater station at Arcadia. The Tampa terminals of that equipment will be moved to Sarasota. Since Peninsular's Haines City office is now carrier inter-connected through Kissimee, Florida Telephone Corp.'s 12-channel terminal at Winter Garden has been moved to St. Cloud.

Peninsular made extensive studies of its circuit requirements, present and future, before turning to microwave as the answer to its expansion problems.

Between Bradenton and Tampa, in March of 1956, there were 1,985 messages during an average business day. Projecting the past growth rate, and its current acceleration, Peninsular estimates there'll be 3,176 messages on a similar day in the 1959-1960 season. That will require 69 circuits. There was, and still is, a 51-quad cable linking the two offices.

Here is the thinking that led to establishment of two parallel microwave paths now multiplexed to provide 48 circuits each—one serving Bradenton, one carrying circuits for Sarasota:

(1) The 41-mile Bradenton-Tampa cable was filled but not multiplexed. An alternative to multiplexing was laying another cable, which just cost too much. All those circuits on another cable weren't needed initially and would not have been in service. Still, Peninsular would have had to pay for them at the outset without getting revenue. With their microwave radio path, they will add circuits as they need them, in convenient multiplex groups, and they will not have to pay for dead weight in the meantime.

(Peninsular made the same decision about increasing facilities to Sarasota, only 12 miles from Bradenton. Here there were two cables already in service: a 52-quad and a 100-pair. Peninsular paralleled these with a microwave path and applied 48 channels of multiplex equipment initially. When it needs more circuits, it will add multiplex channel groups.)

(2) Putting carrier on the present Tampa-Bradenton cable would be, in the words of Peninsular Chief Engineer Donaldson, "putting all our eggs in one basket." (When the cable was cut recently, microwave handled the traffic, with patching from cable to microwave on spare channels.)

(3) Cable carrier terminals, repeaters and power supplies, and the cost of unloading the cable, added up to more than the cost of the microwave and its multiplexing equipment. The biggest microwave cost was the Bradenton tower. However, that cost was split three ways between the microwave projects Bradenton-to-Tampa, Bradenton-to-Sarasota, and Bradenton-to-Arcadia. And, that additional cost was more than offset by the greater security.

A typical comment on the use of microwave radio comes from J. H. Brunk, Peninsular's carrier and microwave supervisor: "Microwave doesn't require the toll terminal equipment, the hybrid amplifiers and expensive networks that are needed in the case of cable equipment to raise transmission to proper level before it can be put on the cable.

"And microwave is quick to install. We know that installation of 120 channels is much faster with microwave than with cable or wire."

George W. Rose, Peninsular's general traffic superintendent, referring to the fact that Peninsular will double its capacity in the next five years, says "I feel it will be economically feasible to use microwave for all this growth. I doubt if we will use any more cable except for very short hauls."

Another company participating in and contributing to the development of southwest and south central Florida is the Inter-County Telephone & Telegraph Co., with general offices at Fort Myers and about 30,500 telephones in service at the beginning of this year.

Inter-County serves 12 counties through its 19 central offices. Its long distance toll centers at Fort Myers and Avon Park have joined the nation-wide operator toll dialing network. The third center at Arcadia is being cut into the nation-wide network this year. The service became 100 per cent dial-operated in 1956, and 15 of its exchanges provide direct distance dialing.

Inter-County's outside plant includes more than 2,000 miles of pole line, 10,000 circuit miles of aerial wire, about 20,000 toll channel miles, and about 800 miles of rural subscriber carrier.

THE AUTHORS. Thomas D. Boyd (left), manager of the news department of Lenkurt Electric Co., who made an extensive study tour of the four Florida telephone companies, and F. S. Swett of Atlanta, Ga., Automatic Electric Sales Corp. staff engineer for carrier and microwave.

In 1955 there was an 18½ per cent growth over the number of stations of the previous year. In 1956 the growth rate went up to 20 per cent.

This exceeded the growth estimated in a joint Southern Bell and Inter-County population and station forecast made early in 1956. That study resulted in these predictions:

Year	*Population*	*Stations*
1956	90,000	30,000
1957	115,000	34,000
1958	120,000	38,000
1959	126,000	43,000
1960	147,000	49,000
1975	330,000	110,000

Last year, while adding nearly 3¼ million dollars to its gross plant, Inter-County put through an average of six million local calls a month and more than a quarter of a million toll calls a month.

Before going to microwave, Inter-County had toll facilities consisting mostly of multiplexed wire line. Reviewing the 1956 operation, Chief Equipment Engineer W. B. Abernathy pointed out that the company had achieved only a 6 per cent increase in toll circuit mileage during 1955, with an 18 per cent increase in number of stations. Mr. Abernathy comments, "We had been squeezing our toll facilities to the limit."

The company faced the choice of microwave, toll cable or expensive retransposition of its wire line facilities. Retransposing would have brought only temporary relief and would not have provided circuits for anticipated future expansion. Even cable would have had more restrictive limits than microwave in this application.

Microwave radio equipment installed in the penthouse of Peninsular Telephone Co.'s general office building at Tampa. Microwave Maintenance Superintendent Arthur H. Stoutenberg is at left.

For instance, the two groups of wire from Fort Myers to Naples were multiplexed with 140-kc carrier to provide 21 channels including the physicals. To add more would mean J-transposing the balance of the open wire at a cost of about $500 a mile, and would have meant circuit outages in the process.

Also, as Mr. Abernathy explained, "there's a pretty good-sized road improvement program going on in that area. And the more you put on the

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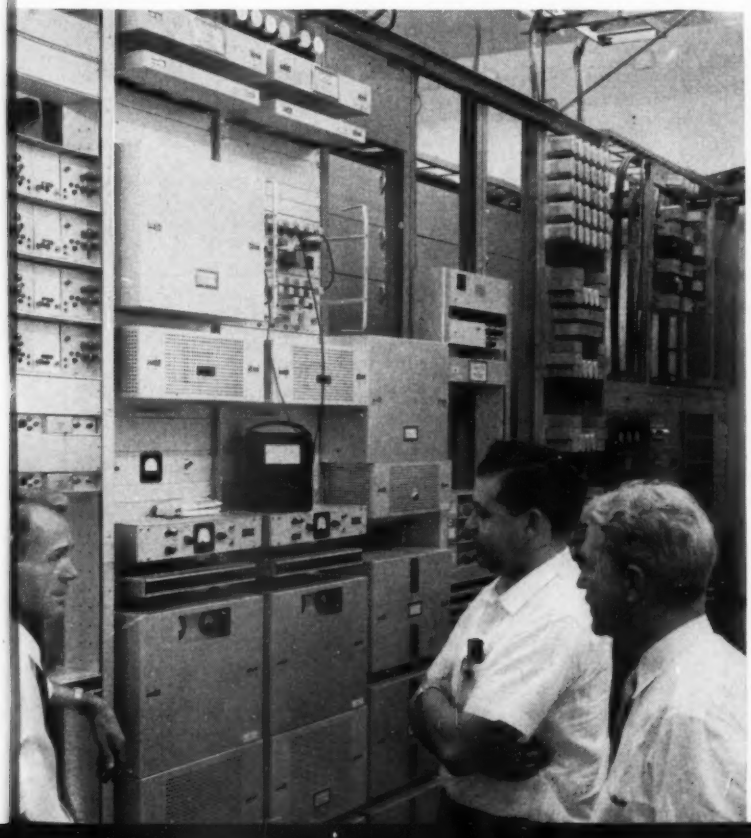
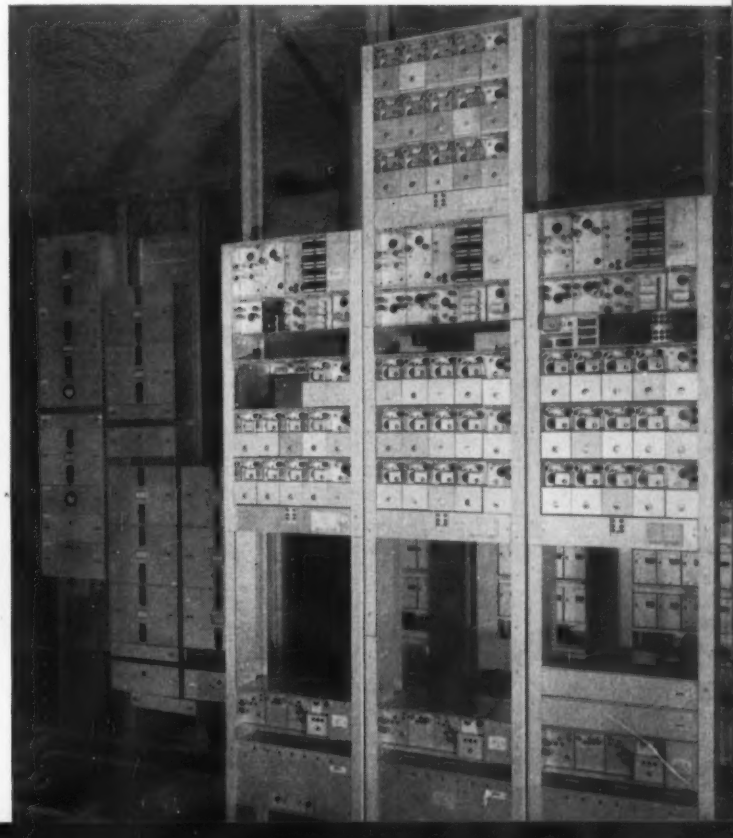
LEFT PHOTO: Suppliers' representatives discuss final details at Inter-County Telephone & Telegraph Co.'s Arcadia office. Lenkurt's Robert Tidwell (left) was EF&I project manager assigned to Inter-County. With him are Automatic Electric's Terry Swett (center), field engineer, and Grogan Shelor, sales representative. In the background between them are racks of microwave radio equipment, with radio channelizing equipment behind Mr. Tidwell. RIGHT PHOTO: These partially-filled racks at the Inter-County company's Ft. Myers headquarters contain radio channelizing carrier equipment for 48 channels.





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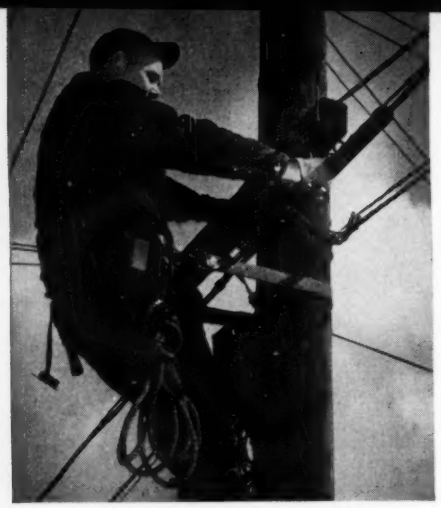

THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITORIAL DIRECTOR

AFTER TRAVELING rather extensively in practically all types of fixed wing aircraft down through the years from the old open cockpit DH or World War I vintage to the modern DC-7 and the Turboprop Viscount, the writer finally managed to make a trip in a helicopter. This was indeed a most interesting and novel experience and one that will be long remembered.

On my first flight, we were scheduled to take off from the new Defense Department's Heliport, located just west of the Pentagon in Washington, D. C., on a clear, hot morning at 8:30 A.M. We arrived at the Heliport about 15 minutes early and the big army helicopter from Ft. Belvoir arrived and touched its wheels to the concrete on time to the minute. This was one of the big jobs with a rotor at each end.

We had always thought that a separate engine powered each rotor but we were informed that there is only a single engine that connects to each rotor through gears and a drive shaft. This aircraft will carry twelve or more passengers, depending on whether bucket seats or a more plush seating arrangement is used.

The crew chief checked us against the passenger list and motioned us aboard. The pilot kept the rotors revolving at a slow rate and as we walked under them and felt the air beating downward, I, for one, had an urgent desire to duck, even though I knew that the rotors were a good 12 feet above my head.

When we were seated, our seat belts fastened and checked, we took off almost vertically. This is a most peculiar sensation for one accustomed to riding in fixed wing aircraft. There was also an unusual side swing somewhat similar to the basket of a free balloon.

A look out the side window gave one a strange sensation when it was noted that there was no wing in the accustomed place. Then you look up and see the rotors revolving and you silently hope they continue to turn.

On this particular trip, we took off for Fort Lee, Va., which is located about 125 miles, air line, south of Washington. We flew low most of the trip, 700 to 900 feet, which gave us an excellent view of the Virginia countryside. Virginia, from the air, is always a beautiful sight and more so especially in the spring when everything is a deep green.

We covered the 125 miles in one hour and 15 minutes. The normal cruising range of this type of aircraft is about 100 miles per hour. The ride was smooth in that the aircraft did not dip or roll after we reached our cruising altitude. The vibration is much greater than that of the conventional aircraft and the noise level is rather high. Some high frequency noise was noted which was probably generated by the gears on the driveshaft. Everything considered, however, this is a great way to travel on comparatively short distances.

Furthermore, it is some satisfaction to know that you can sit down almost any place without a landing field, if necessary. On our return flight from Ft. Lee to the Pentagon, we made it in one hour and 20 minutes flat.

We discussed the operation of this type aircraft with our pilot and co-pilot, both army warrant officers. We found these young men most enthusiastic and eager to talk about their work.

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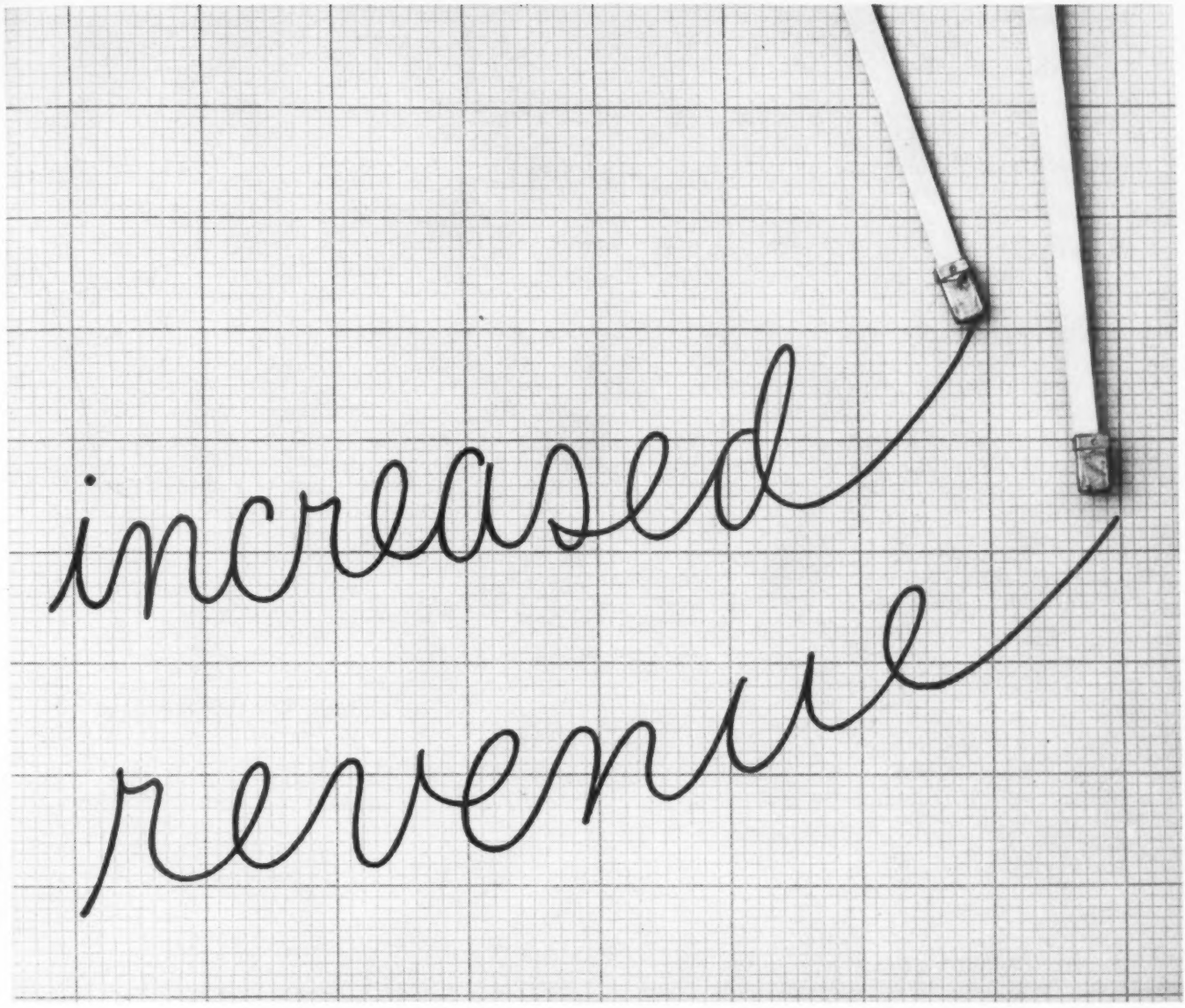
The Signal Corps Army Aviation Center's Piasecki H-25 helicopter carrying telephone and telegraph poles through the air to point of implacement.

An H-25 helicopter demonstrates the use of Army aircraft in construction of wire and cable pole lines. A Signal Corps Army Aviation Center project.—U. S. Army photo.



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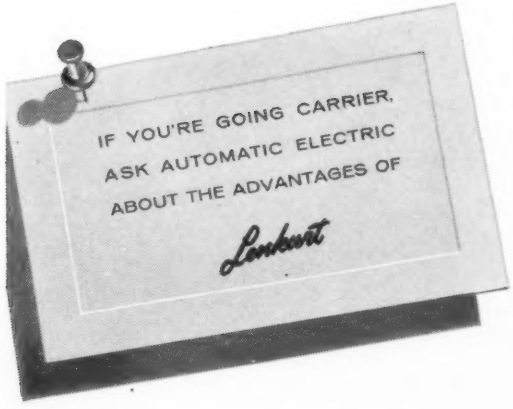

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Missouri-Kansas Conventioneers Take Long Look at Future

by Dan S. Fargo

SOME AMAZING and challenging looks at the future, slants on international human relations, and a very able exposition of the record of USITA, were among the high spots of the sixth annual joint convention of the Missouri and Kansas Telephone Associations, held in Kansas City, Kan., May 27-28.

A luncheon meeting of the Theodore Gary chapter of the Independent Telephone Pioneer Association opened the convention sessions. Wesley H. Loomis III, chapter president, introduced the after-luncheon speaker, Dr. Max Thornton, technical director and vice president of the Mid-West Research Institute of Kansas City, Mo., who spoke on "Science and Research in Today's Economy."

Dr. Thornton congratulated the telephone industry on the research it has conducted in telephone laboratories and which, he said, has paid off handsomely in the outstanding telephone system we have today.

To point up the growing importance of research, he stated that 3.7 billion dollars was spent in research in this country in 1956. It is estimated, he said, that 8 billion will be spent in 1965, and 16 billion dollars in 1975. In the latter year, it is forecast that 1 million workers will be employed in research, and that the expenditure will involve 2 per cent of a gross national product of 800 billion dollars.

Dr. Thornton observed that one of the fields of research gaining increasing emphasis is that of operations research, which employs scientific techniques in non-scientific areas, such as management or other business phases. This type of research is being used to determine:

The most effective use of a sales force.

How to keep inventories at a minimum.

The best use of a given raw material.

The location or re-location of plants.

Dr. Thornton went on to describe a number of other kinds of research now underway and thus gave a foretaste of the amazing world of the future. He had a word of caution for businessmen in an age of automation: "Automation reduces flexibility of production costs, since one can't cut the labor force as easily—and this reduces the number of chances for a wrong guess."

Harold Stouffer of Granby, president of the Missouri association, presided at the first general session. In his talk, Mr. Stouffer referred to the progress report of the General Small Company Committee, which listed the following totals on items of improvement, for the period early 1953 through April 30, 1957:

Adoption of modern accounting methods	127
Market surveys	165
Exchange rate increases	168
Outside plant and COE rehabilitation	214
New financing projects	88
Reorganizations	75
Acquisitions and Consolidations	110
Exchange area boundary filings	240

(Please turn to page 30)

Left Photo: George A. Hearne (left) of Kansas City, Mo. receives the gavel symbolic of the presidency of the Theodore Gary chapter (Independent Telephone Pioneer Association) from Wesley H. Loomis III of Des Plaines, Ill., outgoing president. Katherine A. Bauer, secretary-treasurer of the Gary Chapter, looks on. Right photo: J. T. Naylor of Kansas City, presenting his views on international, especially Asian, relations, while H. H. Welsh of Nortonville, Kan., Kansas association president, listens.

XUM

"What's so different about Automatic's Transistorized Repeaters?"

Maintenance costs are virtually eliminated!

The AT-2 and AT-3 repeaters use transistors instead of vacuum tubes. Transistors far outlast tubes, and they're practically free of aging. You can forget about vacuum-tube failures.

You get all the benefits of the negative-impedance principle!

This provides a low-cost way to boost transmission quality on existing marginal trunks. And you save costs on new construction by using smaller gauge cable.

Automatic's repeaters consume less power!

In fact, our transistorized repeater requires only 1 watt. Naturally, heat dissipation is at a minimum. AT-2 and AT-3 repeaters are entirely self-contained; all power is supplied by the exchange battery.

Transistorized repeaters occupy far less space!

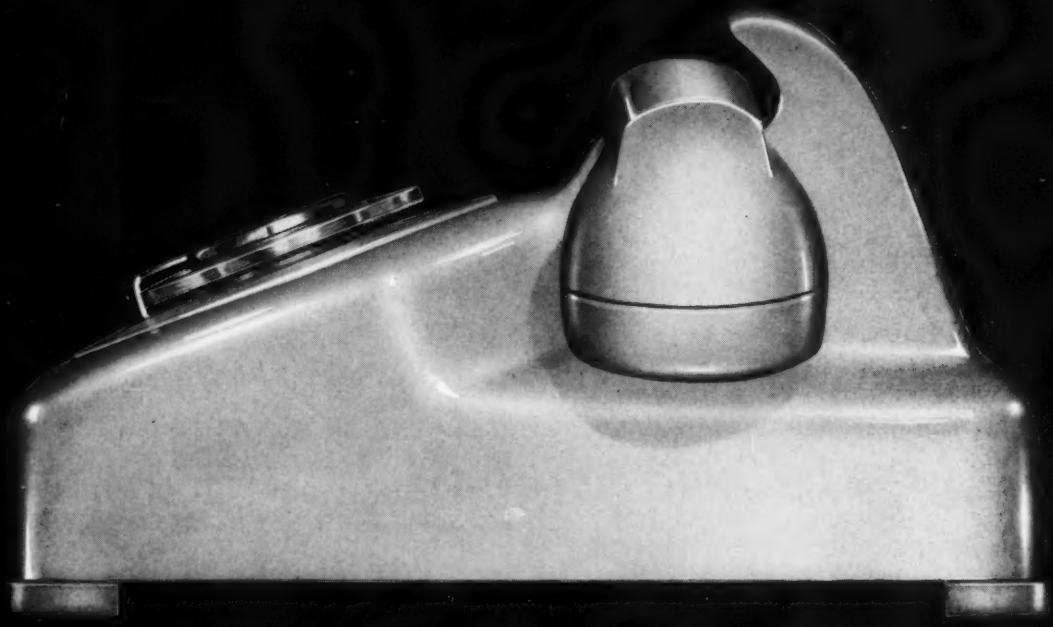
A transistor is only about the size of an eraser on a pencil. Eight repeaters, an entire bank, can be mounted side-by-side on a 19″ rack. They're only 5¼″ high too! The AT-2 is a "series-type" repeater; the AT-3 is a "shunt-type".

Even if you've never used voice frequency repeaters, you should have the facts on AT-2 and AT-3 Transistorized Repeaters. Just ask for Circular 1844A. Address:
Automatic Electric Sales Corporation
Northlake, Illinois.
Or Call Fillmore 5-7111.

AUTOMATIC ELECTRIC

A member of the General Telephone System—One of America's great communications systems

GENERAL SYSTEM



THE SAME

This famous Leich telephone "un-complicates" your business. For the same instrument, just as it is, can be used for either wall or desk installations. It's not necessary to convert, buy or add anything. Don't, however, forget to turn the dial around so the numbers are right side up if you plan to use this Leich *desk* telephone as a *wall* telephone. Simple. Effective. Economical. And proved-in-service.

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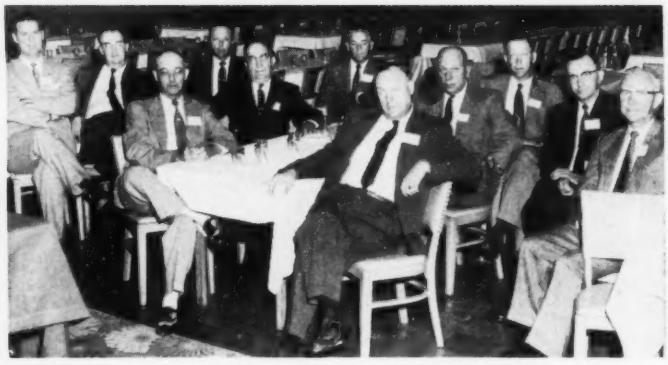


Left Photo: Part of the group which attended the annual business meeting of the Theodore Gary chapter of the Independent Telephone Pioneers Association. Right Photo: Officers and directors of the Kansas Telephone Association shown attending their business session during the joint convention.

The progress report also stated that the number of automatic exchanges has risen from 20 in June 1954, to 118 by June 1, 1957. During the remaining six months in 1957, 41 Independent exchanges will be converted; during 1958, a total of 76. In 1959, only 19 are now under schedule.

The report added that if the expected average rate of conversions is maintained, by the end of 1959 there will be a total of 327 Independent automatic exchanges in Missouri. If the same rate could be maintained for the following two years, every Independent exchange in Missouri would be rendering dial service.

Mr. Stouffer also mentioned that the state's highway relocation bill—which would reimburse utilities when relocation of their facilities is necessitated by federal-aid highway construction—is still in committee and probably won't be presented at the current session. He noted, too, that 10 companies are taking part in the association's group insurance plan.

"Sixty Years of Service in Independent Telephony" was the subject of an address by Leon Roberts, director of information, United States Independent Telephone Association. He traced the history of the Independent telephone movement, including the founding of USITA, down to its present stature—a 2½-billion-dollar investment; 650 million dollars in gross annual revenues, and 40 million local and long distance calls every 24 hours.

Mr. Roberts discussed the federal legislative picture, especially the 750-station operator exemption. He also covered the celebration planned to observe USITA's 60th anniversary. For individual companies desiring to mark the event, he urged open houses, free long distance conversations, as well as recorded conversations for play-back; appropriate advertising, and addresses before service clubs.

Jeff H. Williams, philosophical humorist from Oklahoma, closed the first afternoon session with a talk titled, "Worry, But Don't Go Nuts." Among the several bits of philosophy around which he built his talk, was the following food for thought: "Individual progress comes from exertion and self-denial."

Presiding at the second day's sessions was H. H. Welsh of Nortonville, president of the Kansas association.

Robert R. Dobbin, chief engineer, Stromberg-Carlson Co., in introducing his talk, "What Electronic Switching Promises for the Independent Telephone Industry," said:

"The signs are evident that our industry is entering into the era of full-fledged use of electronics."

Mr. Dobbin urged that those who want to be prepared for developments in the future should gradually get switching and maintenance personnel schooled in "matters electronic."

As an example of a possible switching device of the future, he cited the cryotron, a device developed at the Massachusetts Institute of Technology. He explained:

"This device is a switching element which makes use of a principle discovered over 50 years ago—that a magnetic field applied around a wire will affect the resistance of the wire.

"At very low temperatures, 4° above absolute zero, a piece of ordinary wire has super conductivity—essentially zero resistance.

"Now if a magnetic field is generated around this wire at the low temperature the superconductivity is destroyed and the wire has a definite resistance. This on-to-off ratio of impedance is sufficient to make the device a useful switch.

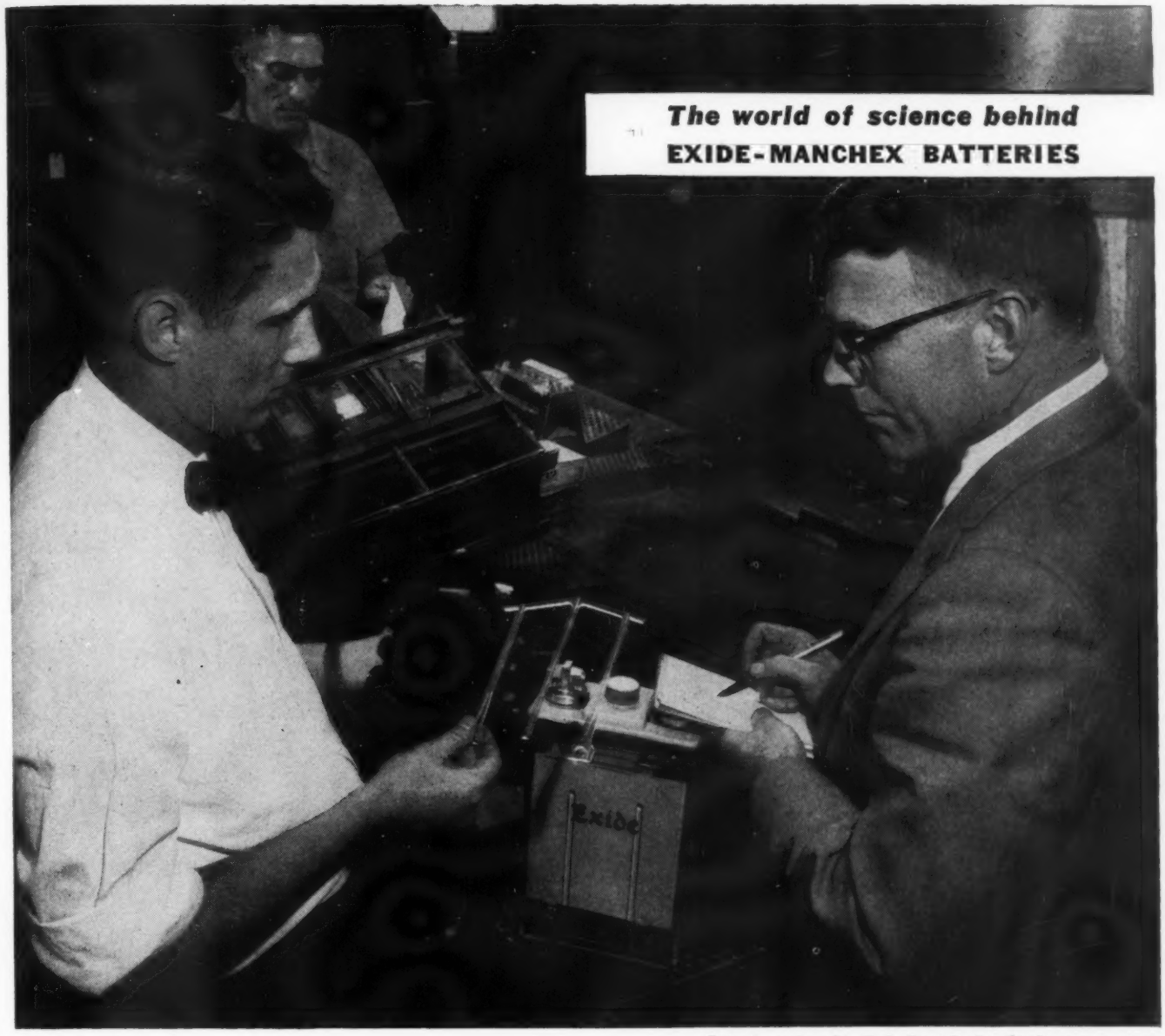
"Probably you are questioning the 4° Kelvin requirement. This is reasonable. Nevertheless, liquid helium is available, in a device known as a cryostat, at a relatively low cost, which produces this temperature. Thus, a possible switching element is being developed.

"These developments lead me to feel that a good switching element will be available soon which will operate electronically and which will not require the fuss and clatter and wear of an electromechanical contact.

Mr. Dobbin also mentioned that line concentrators are becoming increas-

(Please turn to page 34)

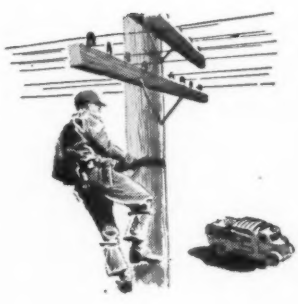
Groups socializing during joint Kansas-Missouri convention.



Being interviewed is E. L. Daniels, Jr., development engineer

"These wide open spacers boost battery power"

At the Exide Laboratories—**Reporter:** When is it most important for a battery to have maximum power, Mr. Daniels?



Daniels: Under short, heavy loads—such as when equipment is switched on or off.

Reporter: How do the wide open spacers help?

Daniels: By providing a shorter, more direct current path between the plates. Hence the internal resistance of the battery is reduced. This is reflected in improved voltage, increased current capacity, and less heating under load.

Reporter: Are there any other advantages to these spacers?

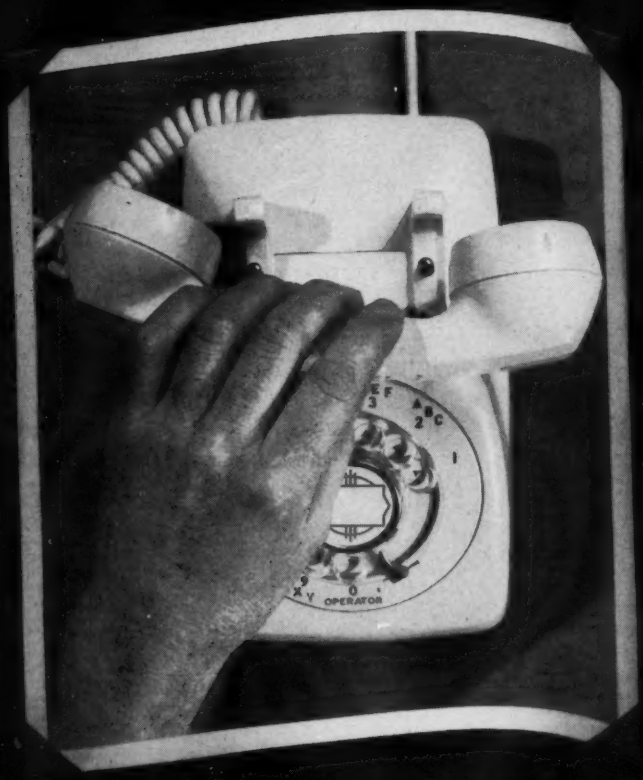
Daniels: Yes, electrolyte has easier access to plates for better constant load battery performance. And the open spacers allow used active material to fall more readily to the bottom of the jar.

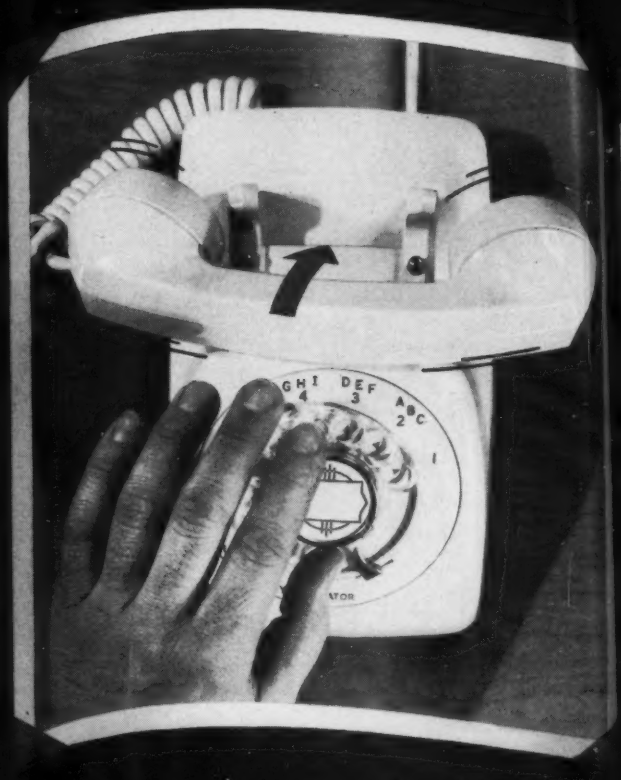
Reporter: Obviously, this is an important feature of Exide-Manchex Batteries.

Daniels: Yes it is. But it's only one of the many engineering details that contribute to their long life and high performance.

Note to battery users: Whenever you order batteries for float or cycle service in stationary applications, be sure to specify Exide-Manchex. Write for detailed bulletin. Exide Industrial Division, The Electric Storage Battery Company, Philadelphia 2, Pa.

THE ELECTRIC STORAGE BATTERY COMPANY Exide®





Picture-Story of a Telephone Compan

*$1.50 is an estimated average cost-per-trouble-trip, based on field reports. For some companies, it is less; for others, substantially more.

nSaving $1.50*

Automatic's Type 80 Telephone
prevents a great many off-hook calls. For no matter how a subscriber hangs up, its "Walking Handset" goes right into the cradle —and you save another $1.50 trouble-trip.

Multiply this figure by the number of off-hook calls you'd normally expect per month and you can see that we're talking about some very worthwhile savings.
Which is one reason why so many operating companies are now standardizing on Type 80 Telephones.

There are other reasons, of course: exceptionally natural transmission, trouble-free performance, easy installation, and improved ringing, to mention a few.

Get the full story from your friendly Automatic representative and send your order along. We'll give you prompt shipment!

Address: *Automatic Electric Sales Corporation, Northlake, Illinois*
Or call FIllmore 5-7111

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A member of the General Telephone System –
One of America's great communications systems

GENERAL SYSTEM

ingly important; and since they are often pole-mounted and are fed power over a cable pair, it is seen that size and power drain are important. He stated that the use of transistor switching in this application "could pay dividends."

To take full advantage of new switching devices, Mr. Dobbin said it is necessary to understand printed wiring techniques. He explained that, with printed wiring boards, "You can be sure there are no cold solder joints to plague you during operation. The manufacturer eliminates any crosses and wiring errors because once the card is developed and checked there can be no doubt that all future cards will be identical.

"These cards also are readily adapted to automatic assembly techniques. When a design is finally standardized this should mean lower cost to the operating company.

"The type of maintenance required is entirely different and simpler. The maintenance man will be required by testing to identify a bad card. He then will replace it and the equipment is operating again."

J. T. Naylor, president of the United Telephone Co. of Kansas, presented "The Other Fellow's Slant." He approached the subject by telling his own experience in Manila when he was with the Philippine Long Distance Telephone Co. As a foreigner he was compelled to begin seeing himself as others saw him. As a result of this experience, he decided that, in dealing with Asian peoples, the following points should be kept in mind:

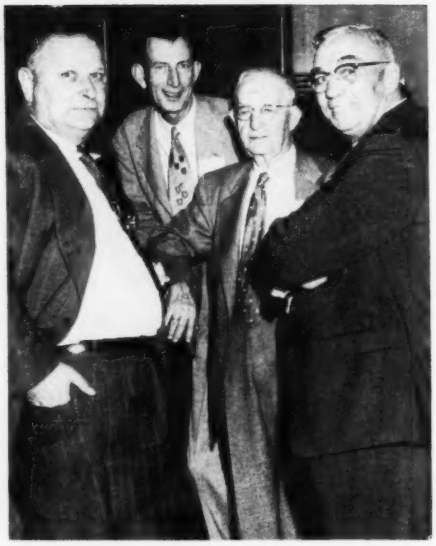
(1) We (Americans) are a product of Western civilization, and two-thirds of the peoples of the world know little of our culture.

(2) All peoples of Asia are equal in intelligence, perseverance and capability to all other peoples of the world; they are in no way inferior to people of Western nations.

(3) The integrity and sense of morality and decency we prize are equally prized by Asians.

(4) They actually excel Western civilization in cultural understanding; they are drawing on a more ancient culture.

Mr. Naylor said that many foreigners are looking to the United States for leadership. He cautioned that any plans we make regarding foreign peoples should start by respecting them as individuals. He said we were liked by many peoples after World War II, but that a number of mistakes we've made, which he listed, have lowered our official standing and sometimes made our position shaky. However, by and large, on a person-to-person basis, they like us, he said.



Group photographed between sessions of the Kansas-Missouri convention.

Mr. Naylor was critical of recent U. S. foreign policy regarding the under-developed areas of the world. He said the beneficiary of any aid is more interested in the motivation than in the act; and, when we advertise that our purpose in aiding them is to induce them to fight Communism, their appreciation of the aid is tempered by the knowledge that we are trying to influence their national policies.

Mr. Naylor approved the foreign-aid programs of CARE, the Asia Foundation, the Ford Foundation, the Y.M.C.A. and Y.W.C.A. and the 4-H clubs, and he recommended that our government get behind these efforts.

The Missouri association elected the following directors:

For three years: H. Scott Gault of La Plata; J. M. Roberts of Gallatin; P. A. Browne of Mountain Grove, and E. J. Ernest of St. Louis.

For two years: Clifford T. Davis of Sullivan; George A. Hearne of Kansas City, Mo.; John Holden of Cassville, and Foster B. McHenry of Jefferson City.

For one year: Jack Bartruff of St. James; C. W. Chastain of Princeton; J. L. Van Horn of Grinnell, Iowa, and Edward G. Greber of St. Louis. Ex-officio member of the board: R. R. Coffman of Cameron.

Missouri officers (all re-elected) are: President, Harold Stouffer of Granby; first vice president, R. E. Williams of Oregon; second vice president, O. C. Agne of Wentzville; third vice president, Miss Elizabeth Journey of Higginsville, and fourth vice president, J. C. Torbett of Wright City.

Also, secretary-treasurer, R. W. Hedrick; assistant secretary-treasurer, Katharine A. Bauer, and assistant secretary, R. W. Hedrick Jr., all three of Jefferson City.

Kansas association directors are as follows:

Carl Travers of Belleville; R. W. Warren of Ellinwood; Clyde Tucker of Pleasanton, and Harry A. Miller of Great Bend (terms expiring in 1958).

Also, Carl B. Brecheisen of Dodge City; S. V. Lyons of Kansas City, Mo.; E. C. Smith of Topeka, and H. H. Welsh of Nortonville (terms expiring in 1959).

Also, Rolley L. King of Caldwell; R. J. Fegan of Junction City; Tom Laming of Tonganoxie, and Paul Grauer of Wilson (terms expiring in 1960).

The directors re-elected Mr. Welsh president, elected Mr. Lyons vice president, and retained Douglas Gleason and Fred A. Schneider, both of Topeka, as secretary and treasurer respectively.

Missouri Pioneers Hold Election

At the annual meeting of the Theodore Gary chapter of the Independent Telephone Pioneer Association on May 27, the following officers and directors were elected:

President, George A. Hearne of Kansas City, Mo.; vice president, Earl V. Ewer of Concordia; secretary-treasurer, Katharine A. Bauer of Jefferson City.

Directors: Mrs. W. W. Scott of Vandalia; Norbert Malone of Kansas City; Fred Meade of Troy; and Tom Winn of Mt. Vernon.

Also elected was an advisory committee (for three years) composed of: F. B. McHenry of Jefferson City; E. G. Aker of Parkville, and Eldridge King of Sullivan.

For two years: Willard Cheney of Kansas City; F. M. Holland of Auxvasse, and Miss Pearl Hall of Columbia.

One year: Wright King of Shelbina; J. M. Roberts of Gallatin, and Noel Rice of Ironton.

Judgment of the U.S.A.

"We are a profligate country—lightly squandering our natural resources, our public funds, and our human talents. I suspect, in the long run, that the last named is the greatest crime of all, for our technical superiority and our ultimate triumph over world Communism will be based on the quality of the man power we have at our command." —LOUIS M. HACKER, *dean, School of General Studies, Columbia University, New York, New York.*

XUM

The man with the $35 shoes

by John Voss

Not long ago I met a man who wore remarkable shoes.

His clothes in general were pretty good, though nothing extra special. But his shoes were really something . . . the finest I'd ever seen.

I was so curious about the contrast between those shoes and the rest of his outfit that I couldn't help asking him if he *had* to have such. He said he didn't.

"Well then," I said, "mind telling me how much you paid for your shoes?"

"$35," he answered.

"That's a lot of money for shoes," I said. "How come?"

"I figure it's actually more economical," he said. "These shoes should last me three years —with hardly any repairs. If I bought shoes for, say, $15 or so, they mightn't last more than a year, and they'd need plenty of repairing at that. So I'd be spending a lot more than $35 in three years."

Well, it's easy to see how much sense this kind of thinking makes when you buy telephone equipment. When you standardize on Stromberg-Carlson, you can *put your repair budget into equipment.*

Take our XY Dial central office equipment, for example. We're mighty proud of it. Mighty proud, too, of the fine reports we get from operating companies. Know what we hear most often about it? Well, they tell us it needs *practically no repairs.*

There's lots of proof of that statement. The XY Universal Switch—the heart of the system —is a perfect example of how this works out. You probably know about the plug-in feature of the switch and the circuit plate. Well, that makes fault locating so easy that you save on maintenance right there.

Then take the wipers. We make them with *twin contacts,* and that means the greatest reliability you can get. On top of that, we choose our materials with the greatest care and follow the highest engineering and manufacturing standards. The net result is there's just about no wear—even after more than 3,000,000 complete cycles. Why, that's the same as 30 years of service!

There's more, too. We make parts like the cog roller assembly, tubular shaft, driving pawl, and ratchets of case-hardened steel. So for all practical purposes, wear is eliminated. And take the mechanism plate. We make *that* of 1/10" steel plate—the kind that's proof against what you call mechanical fatigue.

You've no doubt heard about the vertical multiple wire banks we build into XY equipment. Well, you know, dust can't collect on vertical wires! And they never need oiling, either. The contact surfaces of the twin switch wipers don't scrape or rub, they *glide* over the smooth nickel-silver wires. No wear—you're not always replacing expensive wipers like you are in flat contact systems.

Well, I could go on and on—but I'm sure you get the idea. In all my years in telephony —as installer, systems test engineer, circuit designer, systems development head — I've never seen the equal of XY Dial equipment as an example of how my friend's idea about shoes makes real sense in your business.

John H Voss

Vice President and General Manager
Telecommunication Division

STROMBERG-CARLSON, A Division of General Dynamics Corp., Rochester 3, N. Y.

Advertisement

XUM

Courts and Commissions

Georgia Companies Granted Rate Raises, Financing

The Georgia Public Service Commission on June 5 ordered rate increases for the Comer Telephone Co. effective upon installation of extended area service between the exchanges of the company and the Athens exchange of the Southern Bell Telephone & Telegraph Co.

The commission stated that it was not necessary to hold a hearing on this application because the company had polled the subscribers of the exchanges involved, explaining the proposed rates, and had received affirmative replies from 80 to 90 per cent of the subscribers. New rates will be:

		Colbert Comer, Ila. Danielsville, & Lexington
One-party business	$8.50	$9.00
Two-party business	7.50	8.00
Four-party business	6.50	7.00
One-party residence	5.00	5.50
Two-party residence	4.25	4.75
Four-party residence	3.75	4.00
Rural multi-party:		
Business	5.00	5.50
Residence	4.00	4.50

The commission also on June 5 authorized the Blakely Telephone Corp. to borrow $12,500 from private sources at a 5 per cent interest rate, repayable in 36 equal monthly installments for principal and interest.

The loan, plus some $3,850 of cash raised by operations of the company, will be used to expand its plant.

N. J. Commission Appoints Secretary and Legal Member

Richard F. Green, Elizabeth (N. J.) attorney, on June 12 was appointed secretary to the New Jersey Public Utilities Commission to fill the vacancy created when Emmett T. Drew resigned in March 1956 after more than 25 years service.

Mr. Green received his AB degree from Princeton in 1927. He attended Columbia Law School and was graduated from New Jersey (now Rutgers) Law School in 1930.

In 1931 he was admitted to the bar as an attorney and became a counselor three years later.

He has been acting inheritance tax supervisor for Union County for some time.

Atty. Gen. Grover C. Richman Jr. on June 15 named Dep. Atty. Gen. Joseph P. Lordi of Newark to the legal staff of the commission. Mr. Lordi will fill the vacancy created by the resignation of Dep. Atty. Gen. Benedict W. Harrington, who will become a member of the Newark law firm of Kessler & Kessler on July 1.

Mr. Lordi has been acting chief of the criminal investigation section of the state for the last two years.

He was graduated from Rutgers University Law School in June 1939, and has practiced law with his brother, James P. Lordi, since then.

Delaware Company Requests Increase in Rates

An application for increased telephone rates, to yield approximately $1,880,000 in additional annual gross revenue, was filed with the Delaware Public Service Commission June 21 by the Diamond State Telephone Co.

In its petition, the company said "the proposed increases are necessary to enable it to pay its operating expenses and taxes, to pay interest and dividends upon its outstanding obligations, and to obtain on reasonable terms the additional capital needed to finance the construction required in Delaware during the immediate future."

The company asked that the rates be allowed to go into effect on July 21.

Authorizes Neb. Corporation To Purchase Two Companies

Purchase of the Scotia (Neb.) Independent Telephone Co. (TELEPHONY, June 22, p. 38) and the Loup Valley Independent Telephone Co., North Loup, (TELEPHONY, April 20, p. 36) by the Rodeo Telephone Membership Corp., Burwell, was approved by the Nebraska Railway Commission on June 21.

The following net rates were established, effective with the conversion of the North Loup exchange to dial and the installation of a "master switchboard" at Scotia:

	Scotia		North Loup	
	Business	Residence	Business	Residence
One-party	$6.75	$4.50	$7.50	$4.75
Two-party	6.00	4.00	6.75	4.25
Four-party		3.50		3.75
Multi-party	5.75	3.75	6.00	4.00

The order authorized the Rodeo company to obtain a loan of $313,000 from the Rural Electrification Administration.

Ohio Company Agrees to Compromise on Rate Raise

Attorneys for the Chillicothe Telephone Co. told the Ohio Public Utilities Commission on June 4 that the company, which has more than 15,000 subscribers, would be satisfied with a smaller rate increase than it requested.

The company asked for $356,000 more revenue two months ago, and the commission issued a report which indicated the company would receive $319,508 more revenue based on a commission investigation of plant valuation and the requested new rates.

Atty. Frank C. Dunbar Jr., told the commission the company does not object to that report.

Dunbar also said the company plans a "temporary discount" of $1.00 for the 2466 rural subscribers being served by 9 and 10-party lines.

He said the company plans to improve its service so that no more than eight persons will be on one line. The "discount" would be taken away when service is improved.

A year ago, the commission granted the company an emergency $68,000 annual increase (TELEPHONY, May 19, 1956, p. 27).

NW Bell Gets Secretarial Answering Rates in Neb.

The Northwestern Bell Telephone Co. was authorized by the Nebraska Railway Commission on May 31 to estab-

lish rates for secretarial answering service. Rates will be: $1.75 if the subscriber and the answering service are located in the same central office district; $8.00 if in a contiguous central office district; and $20.00 if in a non-contiguous central office district.

At a public hearing, one protestant who operates a private secretarial service testified that the telephone company's present tariff provisions should be interpreted to apply to trunk lines between the answering bureau and the central office, and not to lines between the subscriber's station and the answering bureau.

In overruling this objection, the commission said, "If such interpretation were given to applicant's present tariff it is readily apparent that the secretarial answering service located nearest applicant's central office would have a substantial competitive advantage."

Commonwealth Telephone Co.'s new Bangor, Pa. district office. With the conversion of the Bangor exchange to automatic in the fall of 1958, total cost of improvements in this exchange area will exceed one million dollars, A. W. Ryder, Bangor's new district manager has announced. In the past three years, the Commonwealth company has spent over 7 million dollars for plant and service improvements. Of this amount, approximately 4¼ million dollars has been spent on the former Pennsylvania community company property—including conversion of 14 of 17 exchanges in the Bangor, Elizabethville and Quarryville districts.

Two Companies Ask EAS, Increase in Rates

The South Carolina Public Service Commission will hold a hearing on July 18 to consider the request of Southern Bell Telephone & Telegraph Co. and Southeastern Carolina Telephone Co. to establish unlimited extended area service between Fairfax (Southeastern Carolina) and Allendale (Southern Bell) and to eliminate the present toll charges between the two points.

The companies also are to take up the matter of adjusting rates at the two exchanges.

Book Review

RADIO OPERATOR'S LICENSE Q. & A. MANUAL by Milton Kaufman. 720 pages. Cloth binding. $6.60. This book is available from TELEPHONY.

The questions put to an applicant for a radio operator's license by the FCC are designed to determine one thing—whether or not the applicant can assume the practical operation of a radio transmitter. This practical aspect is really very important because the fate of lives or valuable property often hinges on how well somebody can keep a radio in operation. Thus the emphasis in the examination is upon the practical experience, rather than the theoretical knowledge of the individual.

Hence, mere memorizing of answers is not enough to enable a person to pass the FCC test. The FCC puts out a list of sample questions (minus the answers) which anyone can get. However, these are intended only to show the scope of the examination. The actual test is a multiple choice answer type.

Various publishers have issued books containing the answers to the FCC questions, but if the person studying the book did not understand the answers, additional books of radio theory would be necessary.

Style

Mr. Kaufman's book, which is the sixth edition of this popular work, uses a distinctive style. To each question as contained in the FCC study guide, a straight simple answer is given. Thus the book can be used as a refresher to anyone who already knows his radio.

However, following each such simple answer is a paragraph or so of description. This gives the reasons behind the answer to the question and supplies the necessary knowledge to permit the reader to know why the answer is correct. This feature is especially valuable to those who may not be sure of themselves or those who may be weak in theory. If you know the reasoning behind the question, you will be able to answer it, even if it is phrased differently.

Generally speaking the answers are quite thorough. To the question—List the advantages and disadvantages of motor-generator and transformer-rectifier power supplies—this book gives an answer listing 28 such advantages and disadvantages.

Mr. Kaufman was formerly an instructor with RCA Institutes and his book has a secondary value quite apart from its use in preparing for an examination. Because the FCC examination tries to determine the practical worth of a man, the examination and the answers contained a wealth of practical information on radio that simply cannot be found in any one other volume.

Kaufman has taken advantage of this in providing a splendid index which enables you to find the answer to almost any practical operating question you can think of. Of added interest to telephone men is the part dealing with batteries and power supplies, which gives a lot of the little known facts about this equipment.

This edition of the Q. & A. manual has been revised to reflect latest FCC requirements for operators and includes material on aircraft radiotelephone and ship radar techniques.—**Reviewed by Harold McKay**

Pa. Highway Relocation Bill

A bill requiring that the state of Pennsylvania reimburse public utility companies for the cost of moving their facilities when necessitated by federal-aid highway construction was given final passage by the Pennsylvania Legislature on June 20 and sent to Governor Leader.

Illinois Relocation Bill

The Illinois senate on June 27, passed by a 51 to 0 vote a bill giving the state highway department the right to reimburse any utility for the cost of moving its facilities necessitated by construction of the federal-aid highway system.

Grants Financing in N. C.

The Sandhills Telephone Company of Aberdeen, was authorized by the North Carolina Utilities Commission on June 26 to sell up to 4,000 shares of preferred stock at a par value of $10 per share to raise money for improving service to patrons in its area.

XUM

REA LOANS $3,680,000 IN SIX STATES

Concluded from page 19

private and semi-private line, and finance increased construction and labor costs incurred since its first loan was approved.

The borrower's two REA loans total $2,232,000. With these funds the company has under construction a system which will offer new and improved service to 6,183 subscribers. It will consist of dial exchanges at: Armstrong, Cellison, Fisher, Flatville, Foosland, Gifford, Penfield, Potomac, Rantoul, and Thomasboro.

W. C. Drysdale is president and manager of the Eastern telephone company.

•

Reno Telephone Association, Hutchinson, Kan.; $444,000, fourth loan (June 21).

The borrower plans to use these funds to furnish improved service for 458 rural subscribers, and initial service to 66 farm families now without telephones. The existing subscribers now receive magneto service from the following companies which the Reno association plans to acquire: The Preston Mutual Telephone Co.; the Murdock Telephone Co. and the Belmont Telephone Co. New automatic central offices are to be constructed at Murdock and Preston.

The new loan also will finance the construction of new headquarters facilities in Hutchinson to serve the entire system.

Past and present REA loans to the Reno borrower totaling $1,814,000 will provide modern dial service to 2,803 rural subscribers. Eight of the system's proposed 10 automatic exchanges are in operation.

B. R. Anderson is president and D. W. Wright is manager of the Reno association.

4 FLORIDA INDEPENDENTS BUILD NETWORK

Concluded from page 23

poles, the more expensive it is to move them."

Inter-County installed microwave, with a repeater at Bonita Springs. Initial multiplex equipment provides 20 channels. Up to 120 channels can be added to the same RF equipment as needed.

The telephone company arranged with Automatic Electric Co. for Lenkurt Electric Co. to survey all propagation paths and furnish and install the carrier and microwave. Lenkurt also engineered several links in the network.

Inter-County is taking advantage of its microwave to make some other changes, too. With direct distance dialing on the present wire, Naples is a tributary on calls terminating at Miami. With microwave, this will be eliminated and Fort Myers will be the toll center.

Altogether, the initial pickup from microwave through the Inter-County system will be about 6,000 circuit miles of new toll facilities. Not one of the microwave paths provided by the seven towers and stations is even half filled. The Fort Myers path, for instance, can be built up to five times its present circuit capacity on the radio equipment already installed.

Incidentally, Inter-County meets the Southern Bell lead with 24 channels of radio channelizing equipment from Clewiston, transferring into two 12-channel open wire carrier groups to Bell Glade, where it interconnects with cable carrier to West Palm Beach. Southern Bell is expected to add 20 channels of microwave between Clewiston and Bell Glade this year. Southern Bell had retransposed the groups from Bell Glade to the Clewiston entrance cable but couldn't meet the microwave network in 1956.

Inter-County President, J. N. Johnson says the 1956 plant expansion of 3¼ million dollars was the largest in the company's history. While the addition of stations in 1956 marked a 20 per cent increase over the previous year, the gain in revenue that year was 21 per cent; but the increase in investment was 29 per cent.

The company budgeted over a half-million dollars for its three microwave radio relay networks and the initial installation of 112 channels. This included microwave radio relay stations and towers at seven locations, with the hub of the system at the Fort Myers general office. The program also included a new three-story building at Fort Myers which served as the base of the tower there and housed the RF, multiplexing and new switching equipment.

Coincidentally, Inter-County is adding a mobile radio telephone station at Fort Myers with two radio telephone channels in service initially. This service will cover an area of about 40 miles in radius from Fort Myers. Taking advantage of the microwave relay tower, the company will locate its mobile radio service antenna there and save the cost of another tower.

Mr. Johnson has pushed the development plan to completion in record time, in spite of many problems and the temporary frustrations that always accompany a big building program.

In next week's installment the microwave networks of Florida Telephone Corp. and North Florida Co. will be described.

THE PLANT MAN'S NOTEBOOK

Concluded from page 24

We inquired as to what would happen if the engine went dead in flight. They advised that if immediate action was taken to change the pitch of the rotor blades one could windmill down without difficulty. One would probably hit rather hard, but ordinarily no serious injury would be caused to the passengers or damage to the aircraft.

If, however, the rotors are permitted to stop when the engine dies, they will not start again and you will drop fast and hit hard. We understand though that to date helicopters enjoy a remarkable safety record and accidents have been extremely few.

We also noticed that our pilot rode the controls continuously and we inquired as to whether this was necessary. He advised that the elevator controls could be locked, but that generally it was considered best to ride the control continually that keeps the aircraft on an even keel.

This particular pilot preferred to ride both controls so that in the event of an emergency he could take corrective action immediately.

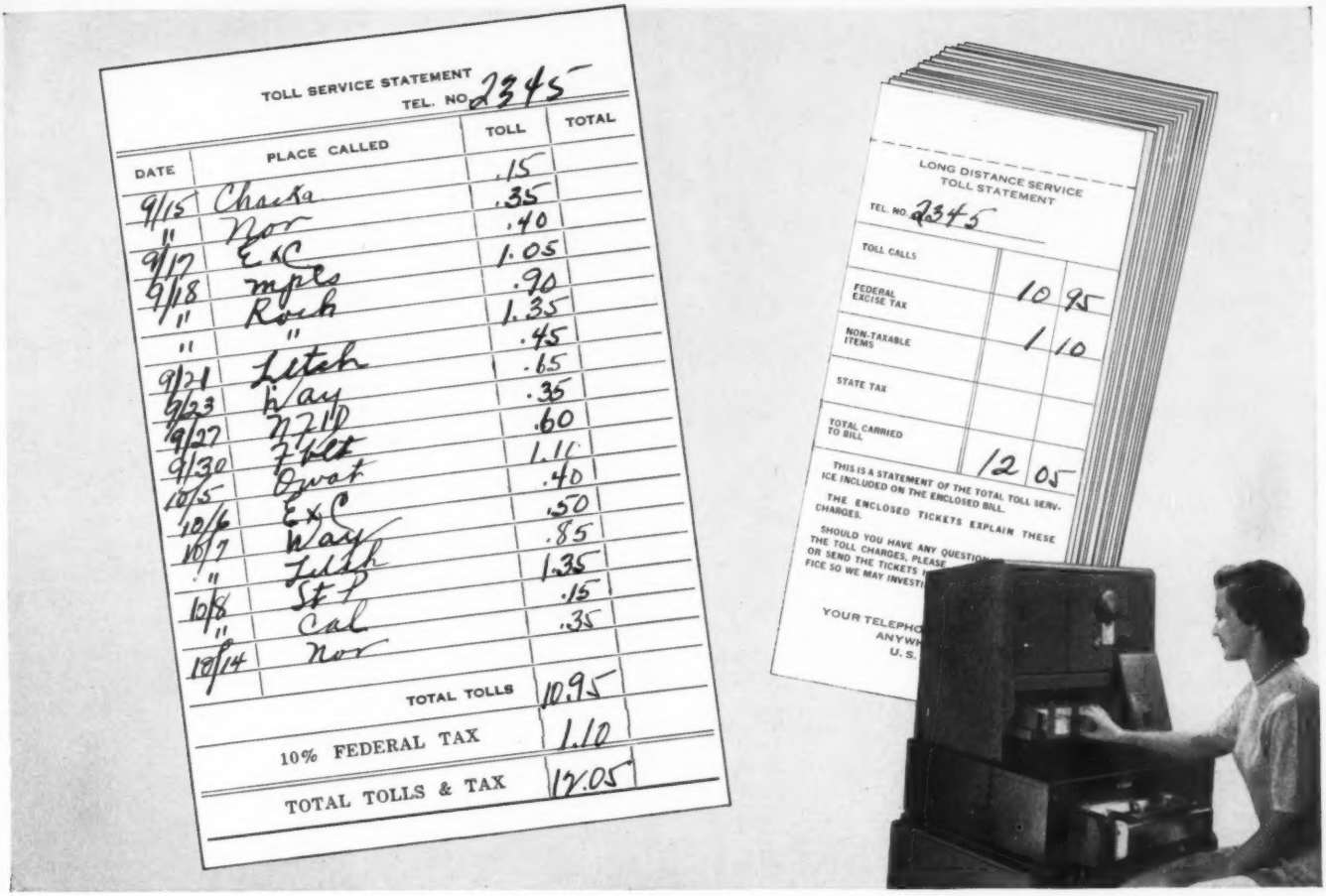
He further advised that if you ever got a helicopter on its back you have reached the end of the course. There is no means of righting them again in flight. For this reason, they prefer not to fly them through clouds.

Perhaps this is the reason, too, that they never bank sharply in a turn. Or, at least our pilot did not on this trip.

This was a most interesting and enjoyable trip and we hope that our pictures turn out well. There is no doubt that in the not-far-distant future, helicopters will be more extensively used to transport passengers to and from airports in all large cities. They would also prove to be of great help in shooting toll line trouble. They have also been used to advantage in beating sleet off of open wire toll lines. This is accomplished by flying low over and along the line, and the down thrust from the rotors vibrate the sleet and ice from the wires.

At any rate, we enjoyed this new experience and are now looking forward to a ride in a jet. If and when we do we will tell you about that also.

XUM



ONE LOOK AT THESE TWO BILLS SHOWS WHY

this Recordak Billing System cuts billing costs 45% or more!

ON THE LEFT, the old-style bill, full of time-consuming details . . . tedious to prepare. On the right, the *simple* bill used in the Recordak System. So easy for your billing clerks to post—actually requires 85% fewer entries! Virtually halves your billing costs!

Here's how the Recordak System works—You add up all toll charges . . . enter this total and tax on bill . . . then microfilm *bill and toll tickets* . . . clip them all together and send on to customer!

In one stroke, you've eliminated hours of transcription work . . . enabled each clerk to handle four times as many accounts . . . reduced the chance for error to strictest minimum. And you have a film record that's complete . . . easy to check . . . easy to file!

What's important, too, this Recordak System improves customer relations. Folks like to get the actual toll tickets. Having all the details makes it easier to remember calls! Questions are answered before they come up!

More than 300 telephone companies are now using this Recordak System. All you need is a Recordak Microfilmer which sells for as little as $550; also available on a low-cost rental basis. Write today for detailed information and copies of actual case histories. Price quoted subject to change without notice.

RECORDAK

(Subsidiary of Eastman Kodak Company)

originator of modern microfilming—
now in its 30th year

MAIL COUPON TODAY

RECORDAK CORPORATION
415 Madison Avenue, New York 17, New York

Gentlemen: Please send folder describing Recordak Toll Billing System in detail. CC-7

Name_____

Position_____

Company_____

Street_____

City_____ State_____

BUFFALO AND ERIE COUNTY PUBLIC LIBRARY

IN THE NATION'S CAPITAL

Continued from page 18

regulatory climate. With the money situation getting tighter, this matter of regulatory climate may also explain why security issues have been such poor performers as compared with industrial securities in recent weeks on the stock markets.

When well-established, large-sized public utility companies are unable to get bond money for much less than 6 per cent, it is time for the regulators to take a long, hard look at what might be responsible, in the minds of the investors. For it is the utility consumer who would be the principal victim of any "flight of capital" or default of investment that would threaten the continued expansion of utility services in the public interest.

FCC Vacancy

George C. McConnaughey jumped the gun on the expiration of his term as a member of the Federal Communications Commission, of which he was also chairman, when he submitted his resignation to President Eisenhower five days before his term would have expired. McConnaughey had already informed President Eisenhower that he did not desire to be reappointed. Instead he will return to private law practice in Washington and in Columbus, O., where he formerly was the head of the Ohio Public Utilities Commission.

President Eisenhower thanked McConnaughey for his able and distinguished service, and shortly thereafter the White House announced that John C. Doerfer would be the new chairman of the FCC. Like McConnaughey, Doerfer is a former state regulatory commissioner, heading up the Wisconsin Public Service Commission.

Since the designation of an FCC chairman, under the Federal Communications Act, is a prerogative of the President, Doerfer does not have to be confirmed by the Senate as chairman of the FCC. He is luckier in this respect than still another former state commissioner, who was having his troubles at this writing in winning renomination for another term as chairman of the Federal Power Commission (FPC) —Jerome K. Kuykendall, who used to be a member of the Washington Public Service Commission.

Party politics seem mainly responsible for the attack on Kuykendall's renomination. But whatever the reason, enough Democratic senators have declared open season on Ike's appointee to make another term for the FPC chairman at least doubtful.

The new member on the FCC, to succeed McConnaughey, may be known by the time these lines appear in print. But in case there is further delay, and just for the record, here are the leading four candidates, according to the Washington grapevine, as this department is being typed: Leading the field appeared to be George R. Perrine, chairman of the Illinois Commerce Commission. This would be in keeping with the pattern established by President Eisenhower when he came to the White House in 1953 of elevating state regulatory commissioners to the federal regulatory commissions. Perrine had the support of Senator Dirksen (R., Ill.). Perrine was a former Aurora, Ill., lawyer and bank director, long active in Illinois Republican circles. He recently came to Washington, D. C., for an interview with President Eisenhower, giving rise to the speculation

(Please turn to page 44)

BEST for service stations

the BN Booth

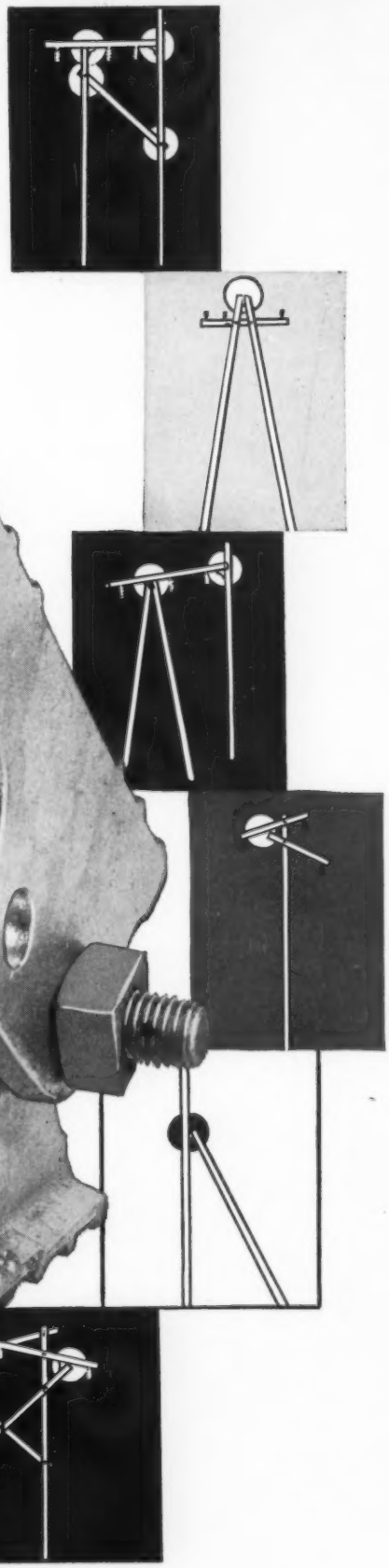
attracts the eye day or night,
promotes more revenue. Colorful, clean, sturdy—
the BN Booth is best for you, too!

For full particulars, consult your distributor or write direct for folder... Benner-Nawman, Inc., 3421 Hollis Street, Oakland 8, California.

a B-N booth is a busy booth!

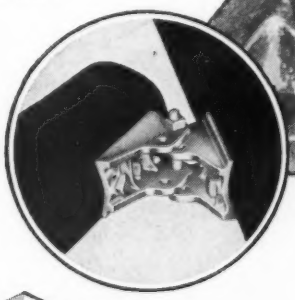
UNIVERSAL ANGLE SPAR CONNECTORS

for wood pole structures
... adaptable to any angle
... economical from every angle



Extremely versatile, these connectors of strong, tough malleable iron can be attached at any angle between 0 and 90°. They are adaptable for use with all types of wood pole structures for transmission, distribution and telephone lines. A light duty fitting is made for attachment to each round member with a single bolt. For medium loads, a larger fitting is attached with a single bolt, and for heavy duty with two bolts. Pole contacting surfaces are curved to fit a wide range of pole diameters and are cast with integral teeth and ribs to spread the load over a wider area, permitting greater loads to be transferred.

With the entire range of usual pole sizes accommodated by only two fitting sizes, inventory and handling time—both in the stock room and in the field—are greatly reduced. The cost of gaining poles is eliminated and the number of holes to be drilled is reduced to a minimum. Poles are not weakened by gaining or excessive drilling. Installation is simple and easy; no special tools required. First cost is low, each component of the fitting being cast of malleable iron in one operation. Write for our new illustrated price list giving specifications.



SINCE 1854
POLE HARDWARE DIVISION

MALLEABLE IRON FITTINGS CO.
BRANFORD, CONNECTICUT

Representatives: William J. Cottrell Co., Portland, Ore. • James H. Drew Corp., Indianapolis, Ind. • Hugo Sales Co., Minneapolis, Minn. • Industrial Engr. & Equip. Corp., Los Angeles, Cal. • JSG Electric Co., Chicago, Ill. • Lee-Smith Co., Miami, Fla. • Line & Cable Accessories, Ltd., Toronto, Ontario, Canada • B. H. McCoin, Knoxville, Tenn. • William J. O'Brien, Memphis, Tenn. • Slaybaugh-Thompson Co., Denver, Colo. • Robert P. Smith & Co., Jacksonville, Fla. • E. A. Thornwell, Inc., Atlanta, Ga. • J. P. Voight, Summerville, S. C. • Waltham, DeWitt & Krusi, San Francisco, Cal. • L. G. Wendegatz, Kansas City, Mo. • Williamson Sales Co., Shreveport and New Orleans, La.; Dallas, Houston, Tex.; Pine Bluff, Ark. • O. C. Witte Co., Detroit, Mich.

XUM

RESERVED:

everything but the catch

No one knows whether fishermen who call ahead for reservations catch more fish than those who don't.

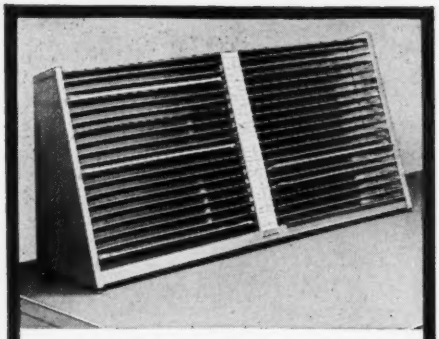
But at least they're carefree. By telephone they reserve the rooms they want, as well as boats, guides, equipment and anything else that's needed. Fish are all they have to worry about.

Making this known to sportsmen the country over is the aim of a special series of advertisements from which the illustrations on this and the opposite page are taken. They appear in *Field and Stream*, *Outdoor Life*, *Sports Afield* and *Sports Illustrated*, telling some 3,500,000 readers how easy and inexpensive it is to set up fishing trips by telephone.

The question of who catches more fish is secondary to this fact: these ads are helping America's telephone companies "catch" more local and long distance calls than ever.

Working together to bring people together

BELL TELEPHONE SYSTEM



Trouble Recorder Card Rack

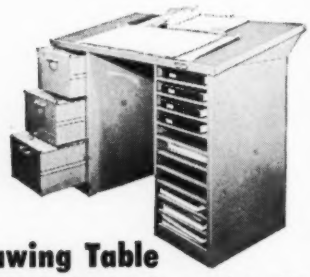
For fast orderly sorting of Trouble-Recorder cards, has 38 card slots in two banks with index strip between. Base is 38" by 8". Height 15". No. D30225-1.

Telephone Office Equipment

to lighten your work and improve efficiency

Work Bench

For repair, assembly, test and paper work. Top drawer divided into 24 compartments for parts and tools. Large file drawers are for circuit drawings. 54" x 25" top covered with masonite. Height 36". Drawers may be inserted from back to reverse position of kneehole. No. D29978-3.



Drawing Table

For circuit drawing in crossbar offices, provides central location for reference material. Masonite top is 30" x 60". Height 36" at front, 42" at rear. Three large file drawers at left for drawings. Eleven shelves at right are 2½" high, 14" wide, 18" deep for sketches, sequence charts, book type SD sheets, trunk serials, etc. No. D30326-1.

Color of all units: Baked-on gray enamel unless otherwise specified.

TWIN POST

Neubauer

MANUFACTURING CO.

517 LOWRY AVENUE N. E.

MINNEAPOLIS 18, MINN.

that he would be a likely candidate for the McConnaughey vacancy.

The three others named as possibilities in earlier speculation are George S. Smith, Washington lawyer, who has been active in representing radio and television interests before the FCC: Mary Jane Morris, secretary of the FCC, who could carry on the tradition established by the preceding administration of having a lady member on the commission; and Warren Baker, FCC general counsel.

Workshops a Feature of Me.-N. H. -Vt. Convention

The telephone associations of Maine, New Hampshire and Vermont held their annual tri-state convention this year on June 4 to 6, at Wentworth-By-The-Sea in Portsmouth, N. H.

The meeting was formally opened by Hollister J. Fletcher of Wallingford, Vt., president of the Vermont Telephone Association; the group was welcomed by Howard W. Chellis of Meriden, N. H., president of the New Hampshire association, and a report on the 1956 USITA convention was presented by James R. Doughty of Island Falls, Me., president of the Maine association. John A. Morse, Independent company relations manager for the New England Telephone & Telegraph Co., at the opening session discussed "These Changing Times."

The afternoon session consisted of tours to the Newington Air Base and to the New Hampshire Public Service Co. power plant.

"A Message from the Commissions" was presented on the second morning by Oscar L. Shepard, chairman of the Vermont Public Service Commission; and George A. Shea, New Hampshire sales manager of the New England T&T, discussed a sales program for Independents.

A talk by Frank A. Smith, transmission and protection engineer in Maine for the New England T&T, covered important points in "Transmission Engineering for Nationwide Toll Service."

Leon F. Roberts, director of information, United States Independent Telephone Association, gave a summary of the association's "Sixty Years of Service to Independent Telephony."

Workshops in the afternoon offered the Tri-state members an opportunity to discuss with other Independent managers these problems, under the direction of the following leaders:

"Accounting," Elmer Draper, manager, Wilton (N. H.) Telephone Co.; "Transmission," Kenton E. Quint, Somerset Telephone Co., North Anson, Me.; "Commercial," John Connor, manager, Perkinsville (Vt.) Service Corp.; "Plant," Gardner Hopwood, manager, Home Telephone Co., Inc. of Alburg, Vt., and "Insurance and Pension," by Merrick E. Wheeler, manager, Springfield (Vt.) Local Telephone Co.

At the closing session, "Plant Design to Serve Rural Areas" was the subject of Carlon M. Grosse, manager of Eastern Telephone Co. of West Enfield, Me. J. Russell Dolan, general directory sales manager of New England T&T, discussed directory advertising.

The group was given a look at "The Economic Future of Northern New England," by Dr. William H. Miernyk, director of the bureau of business and economic research, Northeastern University, Boston, Mass.

General Reduces Conversion Price on 1971 Debentures

A reduction in the conversion prices applicable to the 4 per cent convertible debentures, due 1971, of General Telephone Corp., effective as of June 21, 1957, was announced in New York on June 24 by General's president, Donald C. Power. The principal amount of debentures required to be surrendered for each one share of common stock of the corporation, to be issued upon conversion, has been reduced as follows:

	Original Conversion Price	Adjusted Conversion Price
For the period June 21, 1957 to Apr. 30, 1961, incl.	$49	$47.95
For the period May 1, 1961 to Apr. 30, 1966, incl.	$52	$50.89
For the period May 1, 1966 to Apr. 30, 1971, incl.	$55	$53.83

Government's Sphere

"Where the government intrudes into the private sphere, we must fight persistently against it. Where, however, government action is necessary, let us recognize it and be eager to participate in planning and administering a national policy." — JOHN S. COLEMAN, president, Chamber of Commerce of the United States.

Obituaries

MANTA JANE ELDER of Ottawa, Kan., 74, retired chief operator of the Southwestern Bell Telephone Co., died recently. She had been in failing health for some time.

Miss Elder was born May 21, 1883, near Stanley, in Johnson County.

In March 1906, Miss Elder began work in Ottawa with the Kansas City Long Distance Telephone Co. When the company was bought by the Southwestern Bell Telephone Co., in 1926, she continued work in that company until her retirement in May 1945. She was chief operator for 27 years. She

was a life member of both the Telephone Pioneers of America, and of the Independent Telephone Pioneer Association.

Over the years she had written many traffic articles for TELEPHONY.

Survivors are four brothers, the Rev. Jesse E., of Boise, Idaho; Howard D., of Ottawa; Davis T., of St. Joseph, Mo.; and Thomas L., of Wellsville; and two sisters, Mrs. M. D. McAnelly, Devine, Tex.; and Miss Maggie Elder of Ottawa.

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FRANK A. COWAN, 59, engineer and inventor with the Long Lines Department of American Telephone & Telegraph Co. for the past 40 years, died on June 21.

Among his inventions were the varistor type modulator and demodulator and a telegraph transmission measuring set.

Theodore Gary Pioneer Chapter Holds Barbecue

Theodore Gary chapter of the Independent Telephone Pioneer Association enjoyed its annual barbecue on June 22 at Busch Lake, south of Jefferson City, Mo.

Members, visiting Pioneers' families and guests from all parts of the state and adjoining states attended.

An unusually good crowd was in attendance; the food was excellent and the weather ideal.

George Hearne of Kansas City is president of the organization. F. B. McHenry of Jefferson City was in charge of arrangements.

The film "Prairie Wings," produced by Edgar M. Queeny of Monsanto Chemical Co., and presented to Ducks

A free-lance photographer in Shelby, N. C., sent TELEPHONY this picture, captioned: "Sendin' or receivin', any cat knows a little callin' can save a heap o' jumpin'."

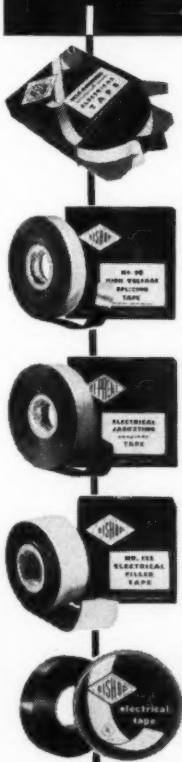
BISHOP...

Producer of World Famous

BI-SEAL

(The Electrical Tape With A Memory)

Offers 5 Electrical Tapes for Moisture Sealing, High-Voltage Splicing, Jacketing, Insulation Build-Up, and All-Purpose Taping.



FOR PERMANENT MOISTURE SEALING

Bi-Seal Self-Bonding (polyethylene based) Electrical Tapes. Water absorption as low as .0065%. Operating temperatures range from –55°C. to 85°C. Power factors are .0006 and .0021 for 1000 cycles.

FOR HIGH-VOLTAGE CABLE SPLICING

No. 30 High Voltage Splicing Tape. Developed especially for splicing cables insulated with ozone-resistant compounds and operating at 2000 volts or more. Superior ozone and corona resistance.

FOR PERMANENT CABLE JACKETING

Bi-Prene (neoprene) Jacketing Tape. For splicing neoprene-sheathed cables. Protects against ozone, heat, moisture, sunlight, oil, grease, hydrocarbons and chemicals, particularly acids. Flame resistant.

FOR RAPID INSULATION BUILD-UP

No. 125 Electrical Filler Tape. ⅛" thick insulating compound in tape form. Easy to mold to any shape. Fuses to a solid, flexible mass. For cable splice build-up, covering sharp cornered connectors, padding bus bars, cable end sealing.

FOR GENERAL INSULATING AND JACKETING PURPOSES

Vinyl Electrical Tapes. Thin, tough pressure-sensitive tapes with great adhesive strength. Offer complete electrical and mechanical protection for most general taping problems. Highly elastic. High dielectric strength.

Write for complete catalog information.

BISHOP

MANUFACTURING CORPORATION

12 Canfield Rd., Cedar Grove, New Jersey

construction and maintenance DIGEST

- Country-style thrift
- Lead in reserve
- Love this petticoat
- Free book tells all
- Indoors or out

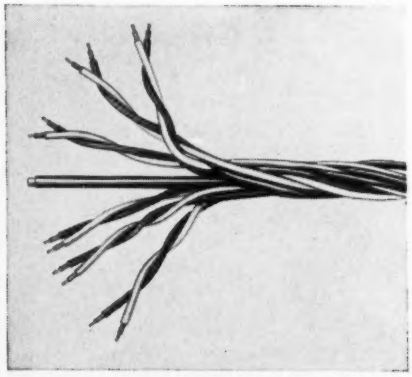
Published regularly to help you get the most out of your materials and supplies dollar

by Joseph W. Mullin, Inside Sales—Kansas City

My pet hobby is photography. Maybe you've noticed yourself—a double exposure can be mighty interesting. For instance, when you order supplies from Stromberg-Carlson you see **two** big benefits in the picture. One, you get fine products with a two-fold guarantee—ours and the maker's. The guarantee is backed by our 62-year reputation. And here's the other. Your support gives the science of telephony a push forward. As you know, this industry is a full-time job with us. Your supply orders help us continue research for new and better telephone equipment. So we say a heartfelt "thanks"—it's a pleasure to serve your supply needs.

Rural Distribution Wire Gives Speed Plus Economy

For fast, low cost construction specify Ansonia Lightweight Rural Distribution Wire.



Ankoseal Rural Distribution Wire Ideal for Temporary Service or Cable Relief

It comes with plastic-insulated #19 A. W. G. soft copper conductors in color-coded parts, which are cabled around a polyethylene-insulated .109 high strength galvanized steel support wire. Each conductor pair has a controlled different length twist to avoid crosstalk.

A breaking strength of 1800 pounds makes this Ansonia Wire & Cable Company product ideal for temporary service or cable relief.

Reserve lead keeps battery young

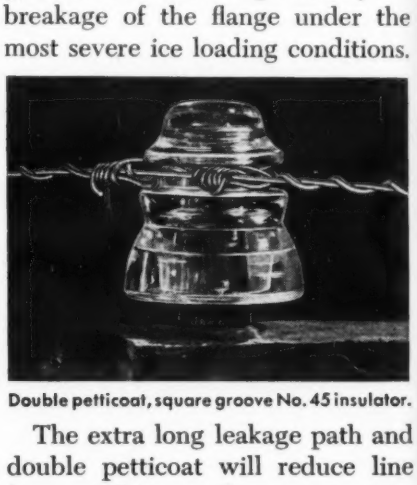
Inside the unique lead buttons in an Exide-Manchex positive plate there's a coil of reserve lead designed to prolong battery life. Over the years, as this lead is needed, it goes into action, instantly and automatically.

The unique thing about Exide-Manchex construction is that the reserve lead does not have to support the plate. The spiral lead buttons are tightly locked into a cast lead-antimony alloy grid several times more rigid than pure lead. Hence the reserve lead can be completely consumed while the plate retains its strength.

Only Exide-Manchex Batteries have this construction. In addition, they feature a plastic jar that saves weight and space, high level electrolyte for less frequent filling, and huge bottom reservoir that virtually insures against sediment shorts.

Use this insulator for rugged line construction

Hemingray Number 45 insulators with their square groove provide the ideal slot for your wire. Their reinforced construction under the groove reduces the possibility of breakage of the flange under the most severe ice loading conditions.



Double petticoat, square groove No. 45 insulator.

The extra long leakage path and double petticoat will reduce line losses and insure the strongest signal possible. These insulators are highly recommended for use on dial circuits where the strongest possible signal is necessary.

Like to know more about Telephone Cable?

Then get your free copy of the Kennecott Telephone Cable handbook. This book contains a concise description of the construction of Kennecott Telephone Cable, and

Textile Insulated Cable for terminating and interphone use.

It also includes specifications for Paper Insulated, Dry (core) Lead Encased Telephone Cable, and tables showing lead thicknesses, approximate outside diameter, weights per thousand feet, and standard reel lengths.

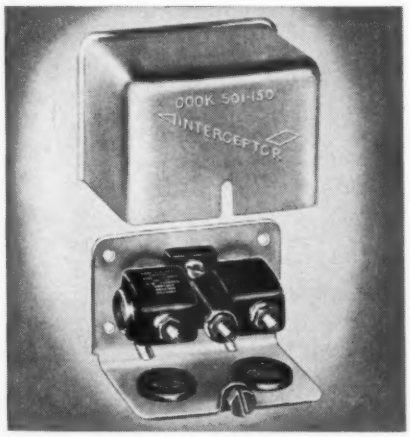
Specify Kennecott – distributed by Stromberg-Carlson.

For indoor or outdoor use

Enjoy greater economy with the "Interceptor" fuseless substation protector, made by Cook Electric Company for use at subscriber stations where the omission of fuses is sanctioned by the National Electric Code.

The unit consists of a Bakelite base with heavy terminal and ground studs. Both line circuits are protected by Cook Minigap or Mytigap protectors.

The "Interceptor" can be used indoors or out. Indoors it mounts directly in a convenient location.



Fuseless Substation Protector.

Outdoors it is fitted with a mounting bracket and cover for home, pole or cross-arm installation.

For outdoor mounting the "Interceptor" is fully enclosed in an all-metal weatherproof housing with neoprene grommets which seal the dropwire and ground entrance.

Distributed by

STROMBERG-CARLSON

A DIVISION OF GENERAL DYNAMICS CORPORATION

Sales Offices: Atlanta 6, Chicago 6, Kansas City 8, Rochester 3, San Francisco

Unlimited, was shown. Scenes were filmed in the Grand Prairie region of Arkansas.

Illinois Bell Bulletin Dramatizes Tax Burden

With telephone companies on the lookout for new ways to dramatize the considerable percentage of the subscribers' telephone bill represented by taxes, the June 1957 Illinois Bell Telephone Co. information bulletin distributed to supervisory personnel, should be of interest.

Some of the sub-heads in this bulletin, which is titled "Speaking of Taxes," are as follows:

Families really bear entire telephone tax burden.

"That's right—$2.55 for me (carton figure, labeled 'governments'), $1.00 for you (figure labeled 'shareowner')."

"Taxes take more than maintenance (figure of plant man, with bill board in background, on which is written: 'Telephone maintenance costs—84 million dollars; taxes took $128 million dollars.')"

Over three months of year's collections went for taxes (showing 12-month calendar which has been chopped off in mid-April).

Where the 1956 telephone tax dollar went (pie shape, showing breakdown for federal government and state and local governments).

Taxes second biggest (to wages) cost item.

"Hidden" taxes keep rising; how much—of what we collected from customers—went for taxes; monthly tax bill per telephone (three bar graphs).

Sixteen kinds of taxes on company.

A brief history of some of the major telephone taxes, including a tracing of the federal excise tax from 1914 to the present.

Tax portion of customer's 1956 telephone dollar: 28 cents.

The bulletin concludes, "As we said at the start, no one questions the need for taxes. At the same time, it's well for people to know how large a part of what they pay for goods and services goes to government—and telephone service is just one example."

Two More States Proclaim Independent Telephone Week

The United States Independent Telephone Association on June 24 announced that Gov. J. T. Blair of Missouri has set the seal of the state of Missouri upon a proclamation setting aside the week of Sept. 8 as Independent Telephone Week (TELEPHONY, June 15, p. 44).

Tennessee has also issued a proclamation to this effect, according to announcement of T. S. Lauver, secretary-treasurer of the Tennessee Telephone Association on June 24. This makes Tennessee the third state to issue such proclamation in honor of the 60th anniversary of organized telephony and the 60th birthday of the national Independent association. Governor McKeldin of Maryland was the first to do so. Governor Blair's proclamation reads:

"WHEREAS, since its inception sixty years ago, the United States

Rochester (Ind.) Telephone Co.'s Rochester and Tipton exchanges recently were cut over to XY dial service. Here we see Mayor William Jefferson of Rochester placing the first call (to the mayor of Tipton) after about 7,200 telephones in both cities became dial-operated. Standing, left to right: Arthur F. Brubaker, plant superintendent; Roscoe D. Pontius, general manager; Hugh A. Barnhart, president; Tully Pontius, vice president, and T. D. Dial, a director of the company.

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Independent Telephone Association's services have soared—today benefiting more than nine million phone-owners, and

"WHEREAS, Independent telephone companies now provide phone services to nearly eleven thousand cities and towns throughout the country, and

"WHEREAS, these companies and their manufacturers are responsible for many significant technological developments in the art of telephony. Among these are the dial telephone, selective ringing, subscriber toll dialing and automatic toll ticketing, and

"WHEREAS, together with their manufacturers and suppliers and related firms, Independent telephone companies are a vital part of the American free enterprise system and the economic and social well-being of the United States;

"NOW, THEREFORE, I, JAMES T. BLAIR, JR., GOVERNOR OF THE STATE OF MISSOURI, do hereby proclaim the week of September 8-14, 1957, as 'INDEPENDENT TELEPHONE WEEK' in Missouri, and urge that proper tribute be paid during this 60th anniversary celebration to the loyal men and women of the great Independent telephone industry."

Southern Bell Announces Some Management Changes

Henry Grady Turner, formerly of Atlanta, who is vice president and general manager of the Southern Bell Telephone & Telegraph Co. in Mississippi, will become the company's vice president in charge of merchandising activities with headquarters in Atlanta, effective July 1.

Clarence L. Lott of Atlanta, who now heads commercial operations in the company's East organization, has been elected a vice president by the board of directors to succeed Mr. Turner in Mississippi.

C. Carl Sloan, of Atlanta, who is vice president and general manager for Georgia, will join the general headquarters staff in Atlanta as vice president on July 15.

He will be succeeded by John S. Seigle, of Indianapolis, now general plant manager of the Indiana Bell Telephone Co., who has been elected a vice president by Southern Bell's board of directors.

General of Pennsylvania Names Merchandising Manager

Fred E. Cunningham has been named general merchandising manager of General Telephone Co. of Pennsylvania, according to an announcement by Emmett Swanson, operating vice president of the company.

Mr. Cunningham, who is sales supervisor for the company, has had an extensive background of sales experience. In 1935, he became active in retail food sales. In 1947, he joined General Telephone Directory Co. in Illinois as a

F. E. CUNNINGHAM

sales supervisor and, in 1950, transferred to Pennsylvania in the same capacity. He was appointed general sales supervisor for General Telephone Co. of Pennsylvania in 1955, the position he held until his promotion to the newly-created post of general merchandising manager.

In his new capacity, Mr. Cunningham will develop and administer merchandising activities on behalf of the General company and coordinate these activities in all departments.

Dr. M. J. Kelly of Bell Labs Awarded Honorary Degree

Dr. Mervin J. Kelly, president of Bell Telephone Laboratories, was awarded an honorary Doctor of Science degree by the University of Pittsburgh at the University's annual graduation ceremonies on June 12.

In conferring the degree, Pitt Chancellor Edward H. Litchfield cited Dr. Kelly for his "contributions to modern science, for his insistence upon ever higher standards of professional education, and for his outstanding assistance in the growth of corporate understanding of the role of research in modern industry."

Eternal Truth

"It is just as true today as it was a century and a half ago, that the condition under which God has given liberty to men is eternal viligance. Whether the demagogues advocating public power are or are not Socialists is not important. What is important is that the price we pay for public power must also be measured by the advance of Socialism in our midst and our loss of liberty."—E. M. NAUGHTON, *president and general manager, Utah Power & Light Co.*

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Like the dramatic progress in medical science, modern tree care bears little resemblance to the crude methods of only fifty years ago. No longer is it enough to repair damage—to cut away a limb that has died. Today, as always, we seek the answer "Why"—the cause of the damage or disease and apply every modern technique and curative treatment. Only in this way can America's rich heritage of shade trees be preserved.

Scientific tree care is available to you through your local Bartlett representative, a highly skilled technician backed by the knowledge and experience of the Bartlett Tree Research Laboratories. If you have trees which you value, it will pay you to consult him before you need him. No one knows better than a Bartlett client, that an ounce of scientific prevention is worth many many pounds of cure.

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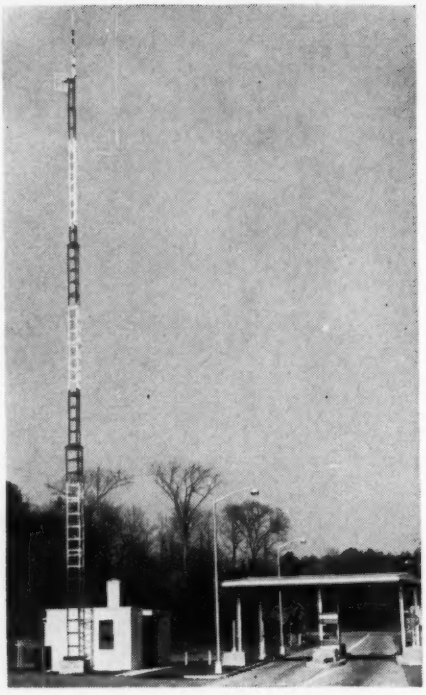

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REA Issues Telephone Technology Courses Memo

The interest of REA in telephone technology courses has been indicated in a memorandum issued on June 14 to REA telephone borrowers, consulting engineers, contractors, and telephone associations, by J. K. O'Shaughnessy, assistant administrator.

Having as its subject, the training and utilization of the telephone technician, the release reads:

"A number of schools of the technical institute type have been offering specialized courses designed to train personnel for utilization by industry in various semi-professional engineering positions (TELEPHONY, June 15, p. 20 and May 18, p. 20).

"A similar requirement exists in the telephone industry for personnel with specialized training to take over many of the semi-professional jobs now being performed by the engineer.

"Several such schools have recently expressed an interest in instituting courses in telephone technology designed to provide two years of college level engineering technician training specifically in the field of telephony.

"Graduates of these courses would have general training in mathematics, electrical and electronic theory, drafting, and in the physical sciences, as well as specialized training in instrumentation and test equipment, telephone transmission, automatic dial equipment, toll equipment, carrier and microwave equipment, traffic measurements, etc.

"Graduates in these courses would receive the degree of Associate in Science in Telephone Technology.

"At the present time engineering technicians serve industry, including some segments of the telephone industry, as engineering assistants and aides, inspectors, estimators, technical training instructors, and in many positions in the field of construction, installation, operation and maintenance of specialized equipment.

"Their training in the fundamental sciences plus training in the application of these fundamental principles in industry serve to relieve the engineer of much sub-professional work, providing him more time for higher level engineering and supervisory work.

"Studies made by the Engineer's Council for Professional Development show that up to eight technicians may be needed for every engineer for full utilization of this nation's technical manpower.

"We have been informed that the first accredited telephone technology course will be started by the Southern Technical Institute of Chamblee, Ga., in September 1957. Similar courses are being considered by the Milwaukee School of Engineering at Milwaukee, Wis., and by others.

"We believe that the use of technicians in the field of telephone system design, construction, and operation and maintenance is one way that the shortage of technically trained engineers can be alleviated. REA is making considerable use of technicians in this capacity. Some consulting engineers employ technicians to assist their engineering personnel.

"We believe that the technical advances and developments in the telephone industry will be such that telephone technicians will find attractive and interesting work now and in the future.

"While we are not sponsoring these schools, we do endorse any and all activities designed to promote more technically trained personnel who can be made available to the telephone industry.

"If trained telephone technicians are to be available for the industry it is imperative that both the need for them and the availability of accredited training institutes be made known to high school seniors, recent graduates, and other interested people.

"We believe that this need can best be made known by the industry itself, by its leaders through their local schools and societies, and through telephone associations.

"The support and assistance of all concerned is urgently needed in publicizing the requirement for and the place of technicians in the telephone industry.

"All possible prospects should be urged to avail themselves of the specialized training now offered which will assist them in qualifying for such employment."

Carolina T&T Completes $4,000,000 Expansion

The climax to a 4-million-dollar construction and expansion program begun approximately two years ago by Carolina Telephone & Telegraph Co. at its Fayetteville exchange came on June 16, with the changing of all telephone numbers in Fayetteville to the 2-5 numbering plan.

In addition, the new numbering system is necessary in order to standardize the Fayetteville exchanges for further adaptation to the nation-wide direct distance dialing (DDD) network. This nation-wide direct distance dialing network is being created to expedite dialing of long distance calls by operators and will result in faster and more efficient service for subscribers.

Carolina T&T's 4-million-dollar expansion program for Fayetteville officially began in October 1955.

The program has resulted in construction of a central office building addition which more than doubled the floor space of that structure. In the first and second stories of the expanded structure, the company has increased its long distance facilities. In addition to other long distance equipment, 14 positions of long distance switchboard have been added to the 50 positions that existed in the toll center. This does not include eight information, four intercept and eight rate and route switchboard positions.

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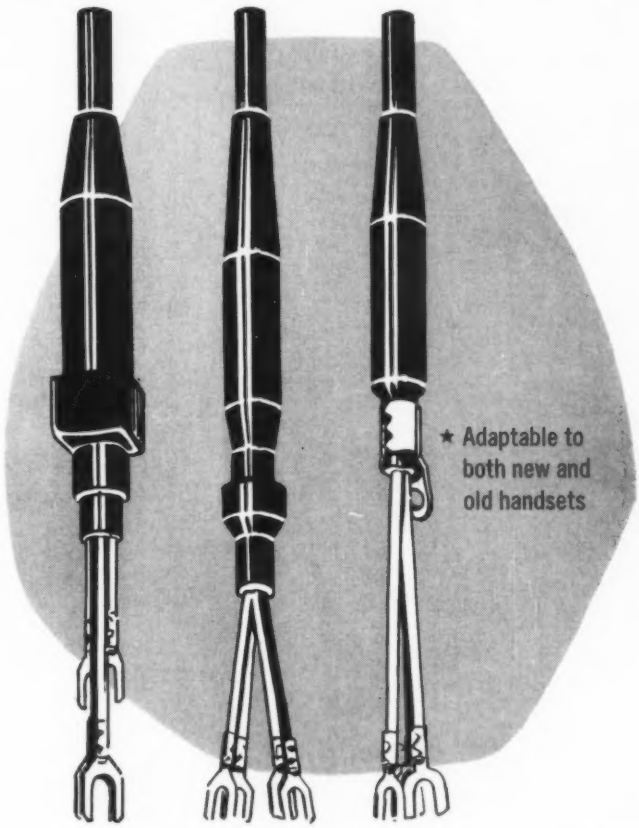

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the company's fourth local automatic office has been installed with a capacity of 7,400 lines and 10,000 terminals (telephone numbers) whereas the three existing offices combined have a total of 10,300 lines and 15,000 terminals.

In outside plant facilities, the telephone company has added approximately 14 miles to its underground conduit system. At the end of 1946 there were some 6,600 telephones in Fayetteville. Today, over 18,000 telephones are serving this growing city. The telephone company's investment in its Fayetteville facilities is well over 10 million dollars today, which is approximately what it had invested in the entire company in 1945.

Whittier College Honors A. Wardman, General of Cal.

Aubrey Wardman, member of the board of directors of General Telephone Co. of California, has recently had conferred upon him the honorary degree of Doctor of Laws by Whittier College of Whittier, Cal.

An active octogenarian, Mr. Wardman has figured prominently in California's telephone industry since 1902, when, as a foreman with the Home Telephone Co. of Los Angeles, he took over the job of planning and installing

AUBREY WARDMAN

a telephone system for Whittier, which went into operation in 1904. He was secretary of the California Independent Telephone Association in 1908 at the age of 31, and the youngest president of the Whittier Board of Trade. He was subsequently many times president of the CITA.

The citation that accompanied the honorary degree described him, in part, as, ". . . a blazing American example of how to get things done. . . . It was his kind that built the communities, the colleges, the businesses of America. . . ."

Recordak Establishes Electronics Division

James J. MacIsaac, formerly with Stanford Research Institute, Menlo Park, Cal., has joined the management staff of Recordak Corp., subsidiary of Eastman Kodak Co., with headquarters in the executive offices, 415 Madison Ave., New York City.

In making the announcement, John K. Boeing, president of Recordak, reports that Mr. MacIsaac will head up the new product planning department whose function is "to investigate and define new or improved applications of microfilming in all types of business systems, including electronics and automation."

"New developments in coding techniques on roll microfilm," Mr. Boeing says, "are opening the way to an increasingly wider field of applications where microfilming is used in the electronic storage and retrieval of business and government information.

"The use of microfilm in both roll and unitized forms as the input and output medium is now being developed for electronic computers. It begins to appear more and more evident that the

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original basic feature of microfilm in condensing volumes of information down to a practical working tool has a tremendous future in business electronic and automation systems."

At Stanford Research Institute, Mr. MacIsaac was a senior industrial economist and head of the electronics industry research. In this capacity, he supervised projects on marketing and product evaluation of electronic and electromechanical products.

A native of Detroit, Mr. MacIsaac was graduated from the University of Michigan with a B.S. degree in Engineering in 1945, and immediately went on duty as an ensign with the Navy, where he served as a ship superintendent at the Mare Island Naval Yard, Cal.

The following year, he returned from active duty to teach on a fellowship at the University of Michigan. During the next two years, he studied for his M.S. degree in the graduate school. Following this he joined Detroit Edison as a systems engineer, also serving as an instructor of evening courses at Wayne University.

He is a member of the American Society of Mechanical Engineers, the Society of Automative Engineers, and the American Management Association.

Philco Names H. E. Taylor To Marketing Post

Herbert E. Taylor Jr. will join Philco's Government and Industrial Division on July 1 as marketing manager for industrial products. He was commercial sales manager for Federal Telephone & Radio Co., Clifton, N. J.

Mr. Taylor has been in radio and television sales, management and merchandising since 1942. He was manager of the communications products division of DuMont Laboratories before going to Federal.

During World War II he managed DuMont's War Service Department and handled liaison between DuMont and the government and other companies in related war production.

He has served on various committees of the Radio Electronics Television Manufacturers Association.

State Should Serve Man

"Creeping Socialism and the totalitarian concentration of power in the federal government must be stopped. The powers reserved to the sovereign states and the people must be reasserted. The country must be rewakened to the immortal principle of Anglo-Saxon freedom that man is destined to be the master rather than the servant of the state."—JAMES O. EASTLAND, *U. S. Senator from Mississippi.*

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Stromberg Opens New Administration Building

A new ultra-modern administration building and the recently purchased electronics center were opened formally on June 11 by Stromberg-Carlson, a division of General Dynamics Corp.

The new facilities provide the company with more than one million square feet of additional space for its rapidly expanding telecommunication and electronics business. Stromberg-Carlson is now the second largest industry in Rochester, employing about 8,000 persons.

Attending the official opening were Frank Pace Jr., president of General Dynamics Corp., Earl D. Johnson, executive vice president, and other top officers of the corporation. They participated with Robert C. Tait, president of Stromberg-Carlson, in a morning press conference and met Rochester industrial and civic leaders and top military officials and other out-of-town guests in the afternoon.

"This is the great growth era of the electronics industry. Never before has such progress been made in the exciting fields of electronics and communications—and never has the future been brighter. Major progress, however, can be achieved only through a major emphasis on research. The opening of the electronics center and other buildings signifies not only that Stromberg-Carlson is expanding, but that it is placing the necessary major emphasis on research," Mr. Pace said.

"Basic research is the foundation stone for what I am sure will be exciting progress in America the next 10 years," Mr. Pace stated.

Mr. Tait said Stromberg-Carlson's research and development work "is a direct multiple of the rate of increase in our employment."

Welcoming visitors at formal opening of Stromberg-Carlson's new administration building are, from left: Earl D. Johnson, executive vice president, and Frank Pace Jr., president, of General Dynamics Corp., and Robert C. Tait, president of Stromberg-Carlson, a division of General Dynamics. Shaking hands with Mr. Pace is Col. W. A. Davis, commanding officer of the Rochester Ordnance District. In background, visible over Colonel Davis' shoulder, is Gordon G. Hoit, executive vice president of Stromberg-Carlson.

One of the problems long faced by business and government, Mr. Pace said, "has been to find the proper relationship between the 'doers' and the 'thinkers.' Too often the doers have been so busy doing, that they haven't had time to think ahead. And the thinkers have been so busy thinking that they have been disassociated from actual accomplishment.

"This problem has been met by General Dynamics, and that's why we look confidently forward to the company's greatness."

The formal opening marked completion of a 5-million-dollar expansion program at the main plant. This project adds more than a quarter of a million square feet of floor space to the firm's office and telecommunication manufacturing facilities.

Another 800,000 square feet were added late last year by the purchase of the Style Manor plant of Bond Stores, Inc. This plant has been named "Electronics Center" and is now headquarters for the company's electronics division. Located in a campus-like

LEFT PHOTO: New administration building of Stromberg-Carlson, a division of General Dynamics Corp., was formally opened on June 11. It is shown at the right of this picture of the company's main plant in Rochester, N. Y. With the addition, the plant provides 800,000 square feet of space. The new administration building provides 164,500 square feet for executive, general and telecommunication offices, and cafeteria. A new factory building, which adjoins the previous plant behind the administration building, also was opened on June 11. All production facilities at the main plant are now devoted to telecommunications. RIGHT PHOTO: Electronics Center of Stromberg-Carlson, which also was formally opened. This building provides 800,000 square feet of space, and houses the company's electronics division, special products division, and research and advanced development department.

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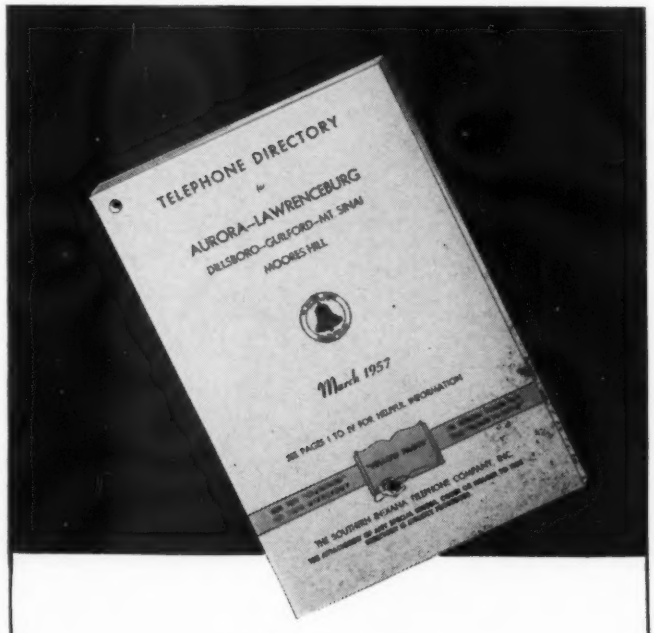

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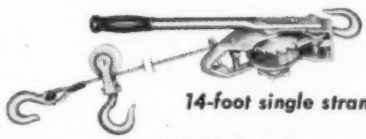

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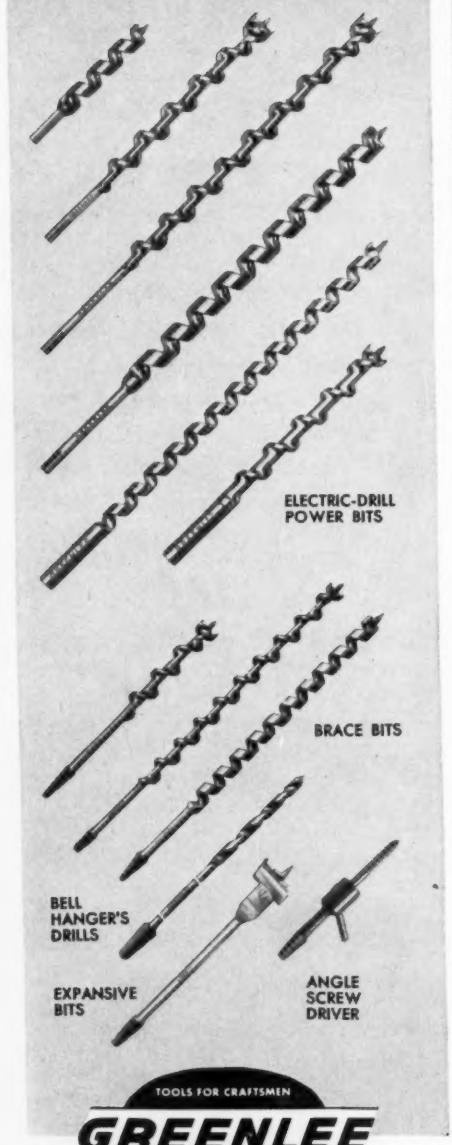

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area, Electronics Center also houses the research and advanced development department of Stromberg-Carlson.

Manufacturing facilities at the main plant are now exclusively devoted to the production of telecommunication products.

Stromberg-Carlson also operates two plants in San Diego, Cal. and a wholly-owned affiliate, Electronic Control Systems, in Los Angeles, Cal.

The addition to the main plant is a two-story structure of brick, steel and reinforced concrete. It is divided into two main sections: (1) The air-conditioned administration building, providing more than 160,000 square feet of space for executive and general offices, a kitchen and large cafeteria section, and an executive dining room; and (2) a factory building, providing 110,000 square feet for enlarged telecommunication production facilities.

Electronics Center, built in 1948-49 on a 57½-acre site in the northeast section of the city, provides large open areas, particularly well-suited to electronics manufacturing. The building contains a large, airy cafeteria, with modern kitchen equipment, and a completely up-to-date medical department. About 35,000 square feet of the plant is air conditioned.

With the opening of these new facilities, Stromberg-Carlson has more than doubled the size of its Rochester plants.

Automatic Electric Offers Three New Telephone Colors

Automatic Electric Co. has announced plans to market three new colored telephones which extensive surveys have indicated are most desired by the nation's homemakers. The new shades—gardenia white, camellia pink and forget-me-not blue—were in production on July 1.

Automatic Electric, which began manufacturing colored telephones in 1929, already offers seven colors in addition to the three new shades. They are classic ivory, sand beige, turquoise, garnet red, sunlight yellow, jade green and dawn grey.

Company officials say they expect the introduction of the new shades to substantially increase the demand for colored telephones.

Women, says the company, dictated which new shades should be added to the line. Merchandising surveys indicated that the nation's homemakers very much wanted the new delicate shades. A large percentage of women voiced a desire for gardenia white telephones to blend with decor of many of today's modern kitchens, laundry rooms and bathrooms.

Camellia pink and forget-me-not blue are preferred by many women for boudoirs, dressing rooms, nurseries and wherever the connotations of femininity and luxury are desired. Their appeal to teen-age girls is almost a foregone conclusion, the company states.

IT&T Elects Morrell to Public Relations Post

At a meeting of the board of directors of International Telephone & Telegraph Co. on June 12, Sydney W. Morrell was elected vice president in charge of public relations, it was announced on June 13 by Edmond H. Leavey, president. Mr. Morrell, formerly general public relations manager of the Ford Motor Co., succeeds Leonard Jacob II, who is retiring.

Born in England, Mr. Morrell was a reporter with the *Daily Herald*, Manchester, from 1930 to 1933, and a foreign correspondent of the *London Daily Express* from 1933 to 1940, being stationed successively in Vienna, Prague, and Budapest, and traveling widely in Europe and the Middle East. From 1941 to 1947 he was on special assignment with Major General William J. Donovan of the American Office of Strategic Services, and with the late Robert E. Sherwood, then head of the

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Light in weight and clean. PENTAchlorophenol treated in our modern plant for protection against decay, moisture and insect damage.

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Willy went dial in the very worst way.

He didn't know he'd been led astray.

The system he bought—to his lasting sorrow—

Was made for today but not for tomorrow.

His town grew fast, his equipment couldn't;

Now Willy's headed where a smart man shouldn't

MORAL: BUY STROWGER AUTOMATIC—
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Don't take a chance like Willy. Call in a friendly, dependable Automatic representative today. He'll be glad to help you plan for the future—just as he has helped hundreds of successful telephone men.

Address: *Automatic Electric Sales Corporation, Northlake, Illinois.*
Or call FIllmore 5-7111.

AUTOMATIC ELECTRIC

A member of the General Telephone System—
One of America's great communications systems

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Serviceable for all around uses. Standard everywhere.
NYLON
Smooth texture, easy to handle. Preferred for switchboard use.
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...for every purpose!
...for every instrument!

Take your choice—Neoprene, Nylon or Cotton. They're all high quality cords made in accordance with Runzel high standard of quality. We carry large stocks of cords to meet every need. Our geographical location means Quick Service.

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overseas branch of the Office of War Information.

From 1947 to 1952, Mr. Morrell had various organizational assignments with the United Nations in Europe and New York. He became an associate of the New York public relations company of Earl Newsom & Co., in 1950

S. W. MORRELL

and a partner in 1951. He has served as general public relations manager of the Ford Motor Co. from 1952 until the present.

Mr. Morrell is a member of the Overseas Press Club, New York; National Press Club, Washington; Reform Club and Special Forces Association Club, London, England; and the Public Relations Society of America.

Demonstrate Lightweight Portable Antenna Tower

The first of five portable antenna towers, fabricated of lightweight magnesium for the Royal Australian Air Force by Magnesium Products of Milwaukee, was demonstrated recently at the Milwaukee, Wis. lake front. The towers, made in sections, are the telescoping type and can be cranked skyward to a height of 150 feet from their telescoped, or ground level, height of only 12 feet.

A 12-man crew can handle and erect a tower in two and a half hours. The complete tower, including guy wires and accessories, weighs only 1400 pounds. One man cranks the sections upwards into position and two men on a platform, 12 feet above ground, bolt the sections together.

The towers will be used as microwave relay stations by the Australian air force as part of its communications network. The microwave equipment for the towers is being installed by the Collins Radio Co.

The United States Air Force now uses three 100-foot portable towers and, Philip B. Craighead, president of Magnesium Products of Milwaukee, stated considerable interest in the towers was being expressed by civil defense officials and police departments in the United States.

Part of the microwave communications system for the Royal Australian Air Force being demonstrated to Australian air force personnel by representatives of Magnesium Products of Milwaukee who designed and built the towers.—*Milwaukee Journal* photo.

Teifeld of Copperweld Named NIAA Executive

Albert R. Teifeld, director of advertising and public relations for the Copperweld Steel Co., Pittsburgh, was elected vice president of the National

A. R. TEIFELD

Industrial Advertisers Association at the annual conference just held at the Waldorf-Astoria Hotel in New York.

Mr. Teifeld has held many positions with the NIAA. He has served as president of the Pittsburgh chapter, National director, and national chairman of the association's business and public relations committee.

In 1944 he joined Copperweld as advertising manager and was promoted to his present position in 1953. At one time he was associated with the American Steel & Wire Division of United States Steel.

The NIAA is the country's largest industrial advertising organization. This year, more than 1,000 members from the association's 30 local chapters in the U. S. and Canada attended the annual conference to discuss new techniques in industrial marketing.

Something to Talk About

Whether we board a bus, hire a cab, have our hair cut, or call a TV repairman, we pay a set price for the service we receive.

The average travel time for a 15 or 25c bus trip takes half an hour, so the hourly rate would be 30 to 50c an hour.

An eight mile cab ride takes about half an hour and costs about $2.00. The hourly rate would be about $4.00.

A man's haircut in Cleveland, O., takes about half an hour and costs $1.75. This means the going rate is $3.50 per hour.

A TV repair service call generally costs $5.00 for the first hour of service.

Home telephone service, on the other hand, costs about $5.95 per month plus tax for a one-party line in Cleveland. So, for 24-hour service, the best grade of service costs about 20c a day —or less than a penny an hour.

Your friends may not be aware of the low hourly rate of personal telephone service. They might be interested in these comparisons.

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"It's time we lost some illusions. We're going to pay for government in business, either through increased taxes or greater debt and depreciated money, and in either case through decreased freedom and opportunity for the individual citizen. Federal power is no gift horse and it is time we looked it squarely in the mouth." — EDITORIAL STATEMENT, *Industrial News Review.*

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Dierks Forests, Inc. (formerly Dierks Lumber & Coal Co.) Wood Preserving Division, 810 Whittington Ave., Hot Springs, Arkansas. Southern Pine select poles, all sizes and lengths, creosote and penta-pressure treated. Prompt shipment.

Eppinger & Russell Co., 80—8th Avenue, New York 11, N. Y.—Creosoted Poles and Cross Arms. Plants: Jacksonville, Fla., Norfolk, Va., Eddington, Pa.

International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants Beaumont and Texarkana, Texas.

International Paper Co., Long Bell Division, 926 Grand Ave., Kansas City, Mo. —Pressure-treated Southern Pine and Douglas Fir Poles. Creosote and Penta preservatives.

Montana Pole & Treating Plant—Box 2004, Butte, Montana. Penta-Pressure treated Lodgepole Pine and Western Larch Poles. Inquiries invited.

Texas Creosoting Company—512 Main Street, Orange, Texas—Creosoted Southern Yellow Pine and Douglas Fir Poles. Can also treat with "Penta."

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PLANT ENGINEERS for large Independent Telephone Company. Some experience necessary. In reply state age, educational and employment history. Address reply to Personnel Supervisor, Rochester Telephone Corporation, 10 Franklin Street, Rochester 4, N. Y.

MAN WITH TWO OR MORE YEARS EXPERIENCE in traffic department to develop as an assistant to traffic superintendent. Some technical knowledge of central office equipment desirable but not essential. Large telephone company in the southwest. Good wages and working conditions with employee benefits. For interview write Box No. 3983, c/o TELEPHONY.

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Private party will pay cash for all or part stock interest in telephone operating property 5,000 to 30,000 stations. Cash also available for conversions. Write Box No. 3953, c/o TELEPHONY.

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150 LEICH 901 TELEPHONES. Excellent condition. Many Koiled Kords. Price $17.50 each. Write Ekalaka Telephone Co., Ekalaka, Mont.

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51 Pr. 22 Ga. SWP—625′, 1088′, 1200′
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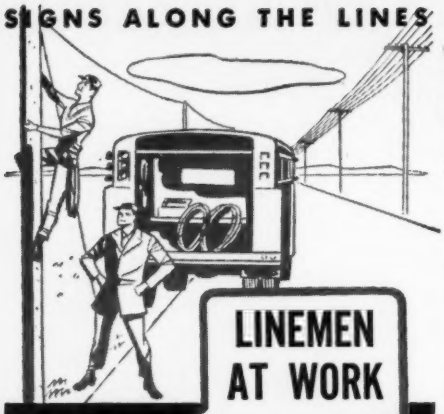

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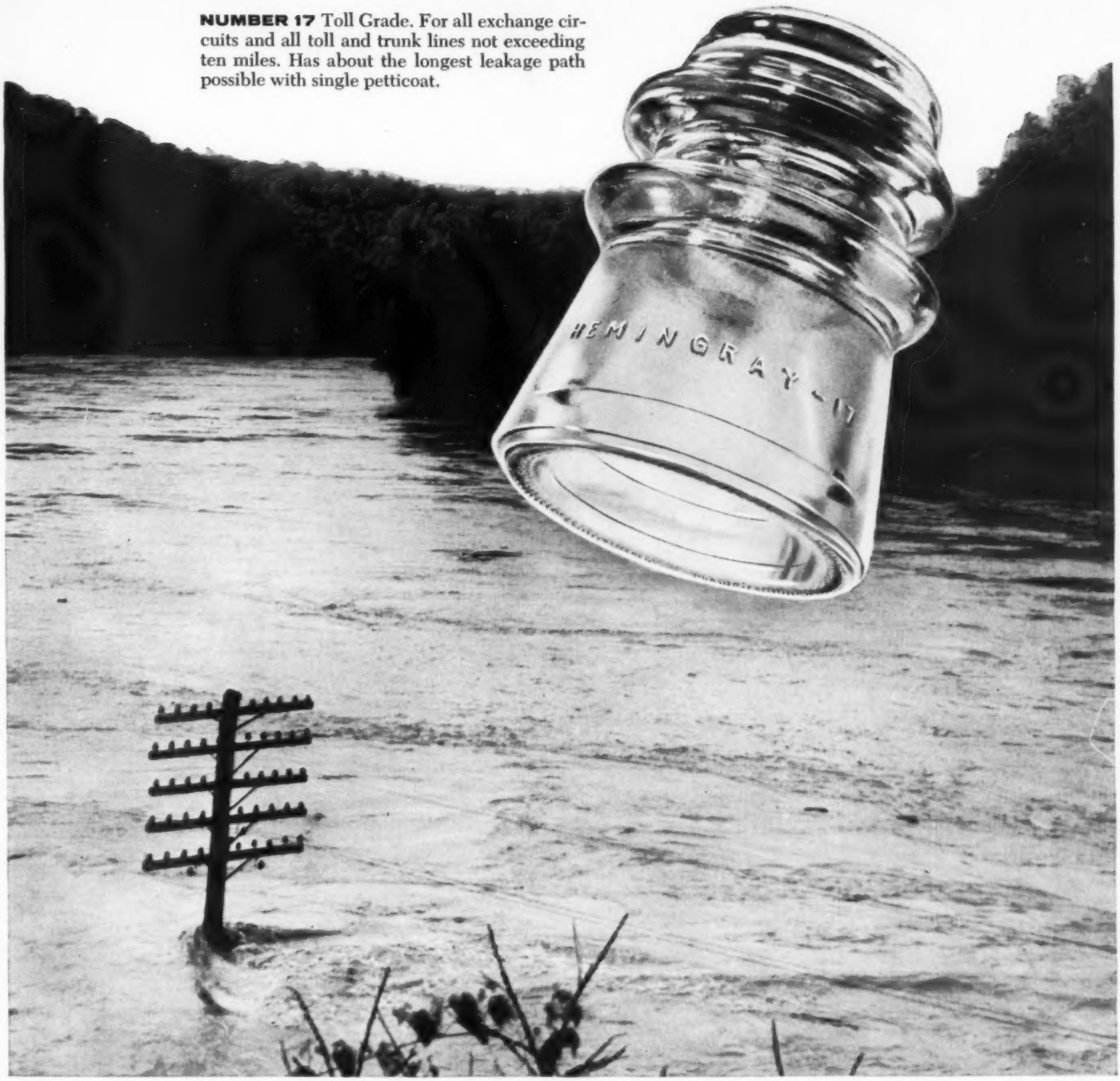

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